ACM-B6360 Board

User Manual

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Manual's first edition:

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Chapter 1 Introduction

ACM-B6360 is a COM Express Type 6 Basic module that fully complies with the PCI Industrial Computer. It supports 3rd Generation Intel ® core ™ i7 processors. It integrates Intel ® PCH QM77 chipset. Besides basic I/O ports support like VGA, LVDS, USB2.0, USB3.0, COM. LAN, and GPIO with ACM-B4080 (optional).

1.1 Specifications

➢ ACM-B6360

- CPU Intel Core i7 3615QE
- Chipset Intel QM77 chipset
- Memory SO-DIMM ECC DDR3, Max:16GB
- RAID support 0, 1, 5, 0+1
- OS support Linux Fedora 14, Windows XP, Windows 7, Ubuntu 10
- Follow COM Express type 6

➢ ACM-B4080(Optional)

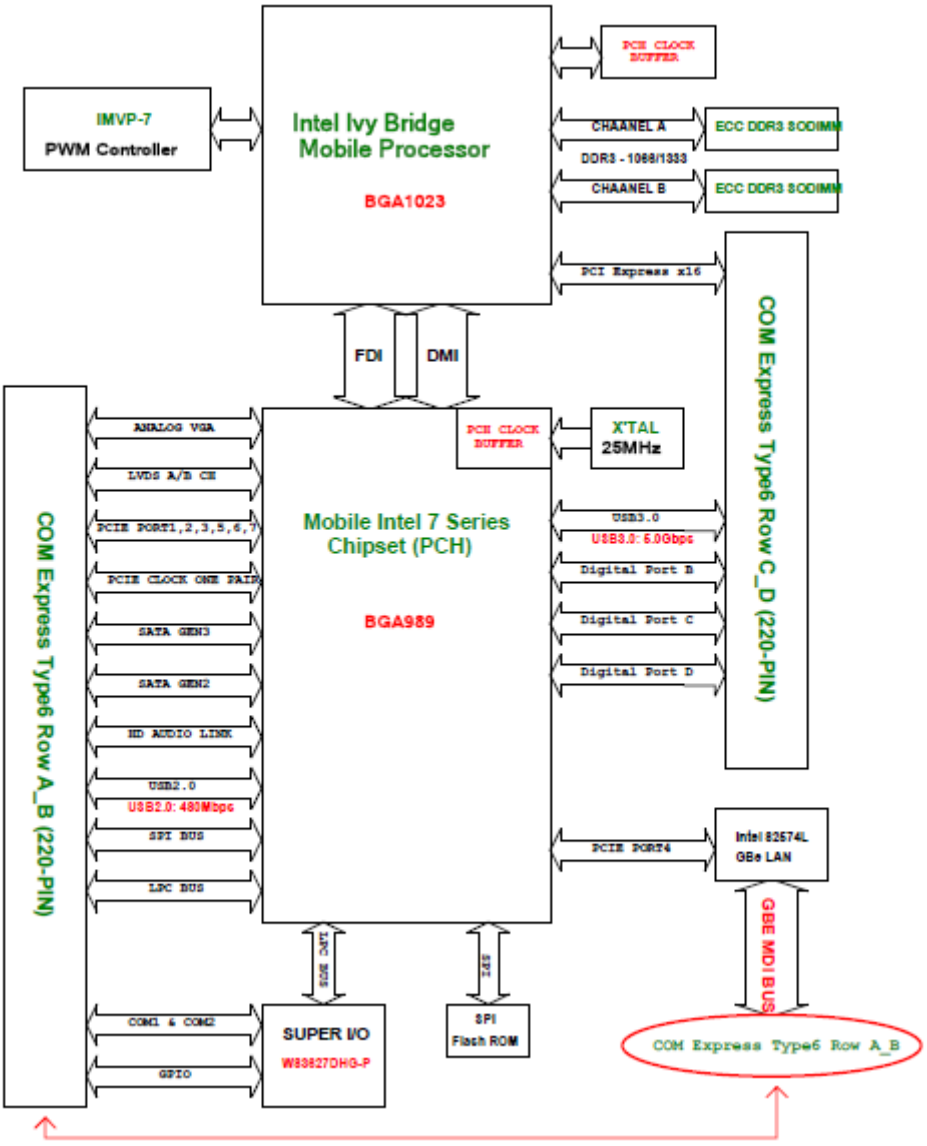
- Ethernet 1 x RJ45 10/100/1000Mbps LAN ports
- Serial Port 2 x RS-232 (pin-header, RX/TX signal only)
- USB 2.0 x 4(pin-header x2, I/O x2), USB3.0 x4(I/O)
- Flexible GPIO ports (8 bits digital I/O (4 x IN & 4 x OUT)
- SATA II x2(6.0Gb/s), SATA III x 2(3.0Gb/s)
- Video VGA (DB15) & LVDS
- Digital display Interface SDVO x1 & HDMI x2
- Audio Line-in, Line-out & MIC phone jack
- PCIe x16 slot x1, PCIe x4 slot x1, PCIe x1 slot x3
- Mini-PCIe x1 (ACM-B6360 not supported)
- SPI, SMBus, LPC, Port 80 display
- ATX Form factor

1.2 Package Contents

Check if the following items are included in the package.

- Quick Manual
- ACM-B6360 board
- 1 x Software Utility CD
- Screw for Carry Board x5pcs

1.3 Block Diagram

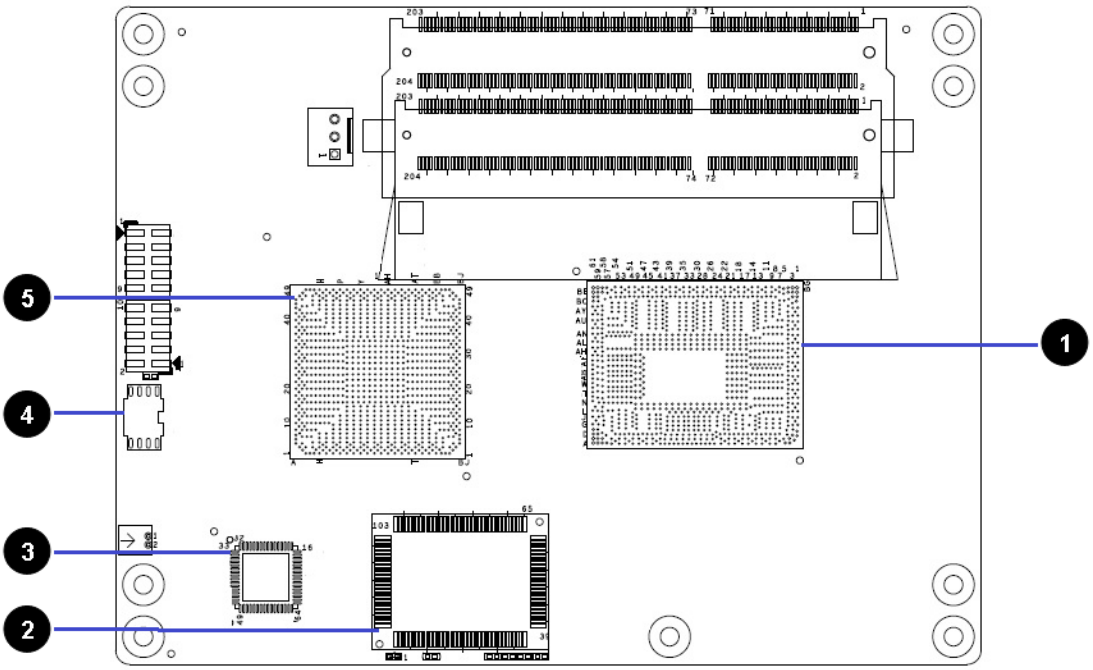


Chapter 2 H/W Information

This chapter describes the installation of ACM-B6360. At first, it shows the Function diagram and the layout of ACM-B6360. It then describes the unpacking information which you should read carefully, as well as the jumper/switch settings for the ACM-B6360 configuration.

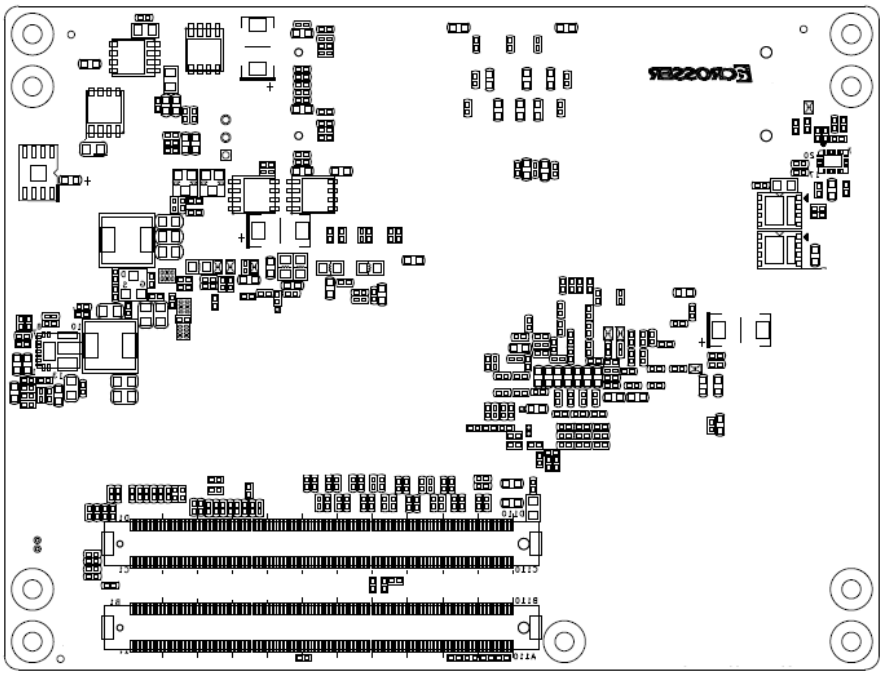
2.1. Mainboard illustration

Top Side



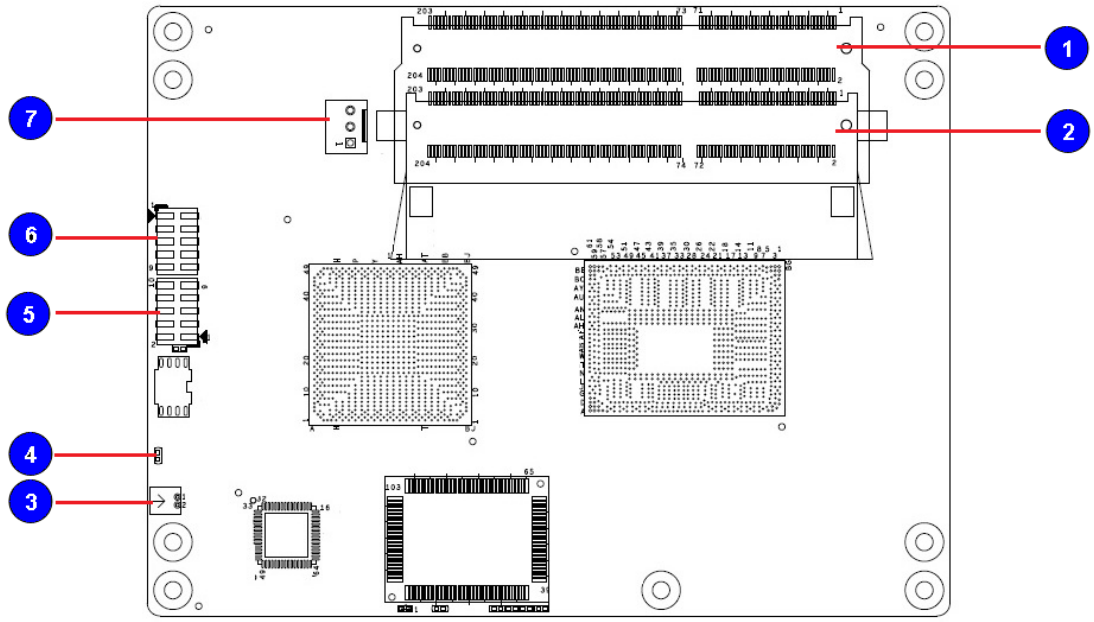
1	**CPU** Intel Ivy Bridge Core i7-3615QE / 2.3GHz	2	**Super I/O** Winbond / W83627DHG-PT Port address= 2Eh
3	**LAN1** Intel WG82574L / GbE /PCIe	4	**SPI BIOS ROM** Winbond / W25Q32BVSSIG
5	Intel PCH QM77 (Chief River)		

Bottom Side

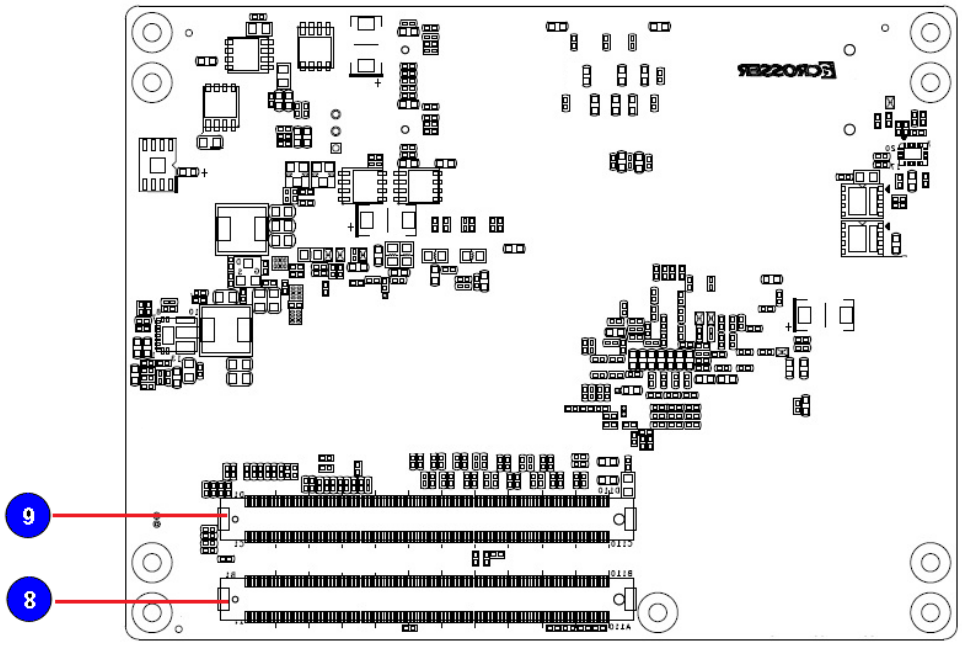


2.2. Locations of IO ports & Jumper settings defination

TOP SIDE



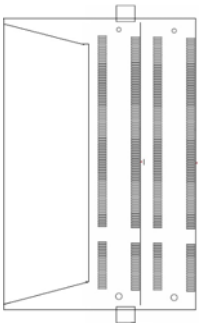
Bottom SIDE



1	**CN_DIMM_2** DDR3 ECC SO-DIMM 204P	2	**CN_DIMM_1** DDR3 ECC SO-DIMM 204P	3	**CN_BAT1** WAF-H_1X2P_1.25mm for RTC Battery connector
4	**CCMOS1** CMOS Memory Clearing PAD	5	**SPI1** For BIOS Firmware Update	6	**CN_HDR1** For SPI_CS0# and SPI_CS1# Selection.
7	**CPUFAN1** 3 pin FAN connector	8	**CN2** COM Express2.0 Module Type 6 Connector Rows A/B	9	**CN1** COM Express2.0 Module Type 6 Connector Rows C/D

2.3. Connectors and Jumper Settings

1,2. CN_DIMM1 and CN_DIMM2



DDR3-ECC SO-DIMM Socket 204P

3.CN_BAT1

RTC Battery connector

PIN	SIGNAL	PIN	SIGNAL
1	BAT+	2	BAT-

4. CCMOS1

Pin	SIGNAL
1-2	Open (default) Normal Operation
1-2	Short Touch Clear CMOS Data

5. SPI1 (For BIOS FW Update)

Used for BIOS Firmware Update Tools

Pin	SIGNAL	Pin	SIGNAL
1	CS#	2	VCC
3	SO	4	Hold
5	WP#	6	SCK
7	GND	8	SI
9	NC	10	NC

6. CN_HDR1

Pin	SIGNAL	Pin	SIGNAL
1	PCH_SPI_CS0#	2	PCH_SPI_CS1#
3	SPI_CS0#	4	SPI_CS1#_COM
5	PCH_SPI_CS1#	6	PCH_SPI_CS0#
7	NC	8	NC
9	NC	10	NC

7. CPUFAN1

Pin	SIGNAL
1	GND
2	+12V
3	FAN Speed Sense

8, 9. CN1 and CN2

Please refer to the pin assignments at next page.

7. CN1 – COM Express 2.0 Base Module Type 6 / Connector Rows C/D / 220Pin
CN2 – COM Express 2.0 Base Module Type 6 / Connector Rows A/B / 220Pin

Pin	CN2 – Row A	CN2 – Row B	CN1 – Row C	CN1 – Row D
1	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)
2	GBE0_MDI3-	GBE0_ACT#	GND (FIXED)	GND (FIXED)
3	GBE0_MDI3+	LPC_FRAME#	USB_SSRX0-	USB_SSTX0-
4	GBE0_LINK100#	LPC_AD0	USB_SSRX0+	USB_SSTX0+
5	GBE0_LINK1000#	LPC_AD1	GND (FIXED)	GND (FIXED)
6	GBE0_MDI2-	LPC_AD2	USB_SSRX1-	USB_SSTX1-
7	GBE0_MDI2+	LPC_AD3	USB_SSRX1+	USB_SSTX1+
8	GBE0_LINK#	LPC_DRQ0#	GND (FIXED)	GND (FIXED)
9	GBE0_MDI1-	LPC_DRQ1#	USB_SSRX2-	USB_SSTX2-
10	GBE0_MDI1+	LPC_CLK	USB_SSRX2+	USB_SSTX2+
11	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)
12	GBE0_MDI0-	PWRBTN#	USB_SSRX3-	USB_SSTX3-
13	GBE0_MDI0+	SMB_CK	USB_SSRX3+	USB_SSTX3+
14	GBE0_CTREF (1.8V)	SMB_DAT	GND (FIXED)	GND (FIXED)
15	SUS_S3#	SMB_ALERT#	SDVO_FLDSTALL+	DDI1_CTRLCLK_AUX+
16	SATA0_TX+	SATA1_TX+	SDVO_FLDSTALL-	DDI1_CTRLDATA_AUX-
17	SATA0_TX-	SATA1_TX-	RSVD	RSVD
18	SUS_S4#	SUS_STAT#	RSVD	RSVD
19	SATA0_RX+	SATA1_RX+	PCIE_RX6+	PCIE_TX6+
20	SATA0_RX-	SATA1_RX-	PCIE_RX6-	PCIE_TX6-
21	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)
22	SATA2_TX+	SATA3_TX+	No Connect **(Note 1)**	No Connect **(Note 1)**
23	SATA2_TX-	SATA3_TX-	No Connect **(Note 1)**	No Connect **(Note 1)**
24	SUS_S5#	PWR_OK	DDI1_HPD	RSVD
25	SATA2_RX+	SATA3_RX+	SDVO_INT+	RSVD
26	SATA2_RX-	SATA3_RX-	SDVO_INT -	DDI1_PAIR0+
27	BATLOW#	WDT	RSVD	DDI1_PAIR0-
28	SATA_ACT#	AC/HDA_SDIN2	RSVD	RSVD
29	AC/HDA_SYNC	AC/HDA_SDIN1	SDVO_TVCLK+	DDI1_PAIR1+
30	AC/HDA_RST#	AC/HDA_SDIN0	SDVO_TVCLK-	DDI1_PAIR1-
31	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)
32	AC/HDA_BITCLK	SPKR	DDI2_CTRLCLK_AUX+	DDI1_PAIR2+
33	AC/HDA_SDOUT	I2C_CK	DDI2_CTRLDATA_AUX-	DDI1_PAIR2-

Pin	CN2 – Row A	CN2 – Row B	CN1 – Row C	CN1 – Row D
34	BIOS_DISABLE0#	I2C_DAT	DDI2_DDC_AUX_SEL	DDI1_DDC_AUX_SEL
35	THRMTRIP#	THRM#	RSVD	RSVD
36	USB6-	USB7-	DDI3_CTRLCLK_AUX+	DDI1_PAIR3+
37	USB6+	USB7+	DDI3_CTRLDATA_AUX-	DDI1_PAIR3-
38	USB_6_7_OC#	USB_4_5_OC#	DDI3_DDC_AUX_SEL	RSVD
39	USB4-	USB5-	DDI3_PAIR0+	DDI2_PAIR0+
40	USB4+	USB5+	DDI3_PAIR0-	DDI2_PAIR0-
41	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)
42	USB2-	USB3-	DDI3_PAIR1+	DDI2_PAIR1+
43	USB2+	USB3+	DDI3_PAIR1-	DDI2_PAIR1-
44	USB_2_3_OC#	USB_0_1_OC#	DDI3_HPD	DDI2_HPD
45	USB0-	USB1-	RSVD	RSVD
46	USB0+	USB1+	DDI3_PAIR2+	DDI2_PAIR2+
47	VCC_RTC (**Note 2)**	EXCD1_PERST#	DDI3_PAIR2-	DDI2_PAIR2-
48	EXCD0_PERST#	EXCD1_CPPE#	RSVD	RSVD
49	EXCD0_CPPE#	SYS_RESET#	DDI3_PAIR3+	DDI2_PAIR3+
50	LPC_SERIRQ	CB_RESET#	DDI3_PAIR3-	DDI2_PAIR3-
51	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)
52	PCIE_TX5+	PCIE_RX5+	PEG_RX0+	PEG_TX0+
53	PCIE_TX5-	PCIE_RX5-	PEG_RX0-	PEG_TX0-
54	GPI0	GPO1	TYPE0#	PEG_LANE_RV#
55	PCIE_TX4+	PCIE_RX4+	PEG_RX1+	PEG_TX1+
56	PCIE_TX4-	PCIE_RX4-	PEG_RX1-	PEG_TX1-
57	GND	GPO2	TYPE1#	TYPE2#
58	PCIE_TX3+	PCIE_RX3+	PEG_RX2+	PEG_TX2+
59	PCIE_TX3-	PCIE_RX3-	PEG_RX2-	PEG_TX2-
60	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)
61	PCIE_TX2+	PCIE_RX2+	PEG_RX3+	PEG_TX3+
62	PCIE_TX2-	PCIE_RX2-	PEG_RX3-	PEG_TX3-
63	GPI1	GPO3	RSVD	RSVD
64	PCIE_TX1+	PCIE_RX1+	RSVD	RSVD
65	PCIE_TX1-	PCIE_RX1-	PEG_RX4+	PEG_TX4+
66	GND	WAKE0#	PEG_RE4-	PEG_TX4-
67	GPI2	WAKE1#	RSVD	GND
68	PCIE_TX0+	PCIE_RX0+	PEG_RX5+	PEG_TX5+

Pin	CN2 – Row A	CN2 – Row B	CN1 – Row C	CN1 – Row D
69	PCIE_TX0-	PCIE_RX0-	PEG_RX5-	PEG_TX5-
70	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
71	LVDS_A0+	LVDS_B0+	PEG_RX6+	PEG_TX6+
72	LVDS_A0-	LVDS_B0-	PEG_RX6-	PEG_TX6-
73	LVDS_A1+	LVDS_B1+	GND(FIXED)	GND(FIXED)
74	LVDS_A1-	LVDS_B1-	PEG_RX7+	PEG_TX7+
75	LVDS_A2+	LVDS_B2+	PEG_RX7-	PEG_TX7-
76	LVDS_A2-	LVDS_B2-	GND	GND
77	LVDS_VDD_EN	LVDS_B3+	RSVD	RSVD
78	LVDS_A3+	LVDS_B3-	PEG_RX8+	PEG_TX8+
79	LVDS_A3-	LVDS_BKLT_EN	PEG_RX8-	PEG_TX8-
80	GND(FIXED)	GND(FIXED)	GND(FIXED)	GND(FIXED)
81	LVDS_A_CK+	LVDS_B_CK+	PEG_RX9+	PEG_TX9+
82	LVDS_A_CK-	LVDS_B_CK-	PEG_RX9-	PEG_TX9-
83	LVDS_I2C_CK	LVDS_BKLT_CTRL	RSVD	RSVD
84	LVDS_I2C_DAT	VCC_5V_SBY	GND	GND
85	GPI3	VCC_5V_SBY	PEG_RX10+	PEG_TX10+
86	KB_RST#	VCC_5V_SBY	PEG_RX10-	PEG_TX10-
87	A20GATE	VCC_5V_SBY	GND	GND
88	PCIE0_CK_REF+	BIOS_DISABLE1#	PEG_RX11+	PEG_TX11+
89	PCIE0_CK_REF-	VGA_RED	PEG_RX11-	PEG_TX11-
90	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)
91	SPI_POWER (3.3V)	VGA_GRN	PEG_RX12+	PEG_TX12+
92	SPI_MISO	VGA_BLU	PEG_RX12-	PEG_TX12-
93	GPO0	VGA_HSYNC	GND	GND
94	SPI_CLK	VGA_VSYNC	PEG_RX13+	PEG_TX13+
95	SPI_MOSI	VGA_I2C_CK	PEG_RX13-	PEG_TX13-
96	TPM_PP	VGA_I2C_DAT	GND	GND
97	TYPE10#	SPI_CS#	RSVD	RSVD
98	SER0_TX	RSVD	PEG_RX14+	PEG_TX14+
99	SER0_RX	RSVD	PEG_RX14-	PEG_TX14-
100	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)
101	SER1_TX	No Connect	PEG_RX15+	PEG_TX15+
102	SER1_RX	FAN_TACHIN	PEG_RX15-	PEG_TX15-
103	LID#	SLEEP#	GND	GND

104	VCC_12V	VCC_12V	VCC_12V	VCC_12V
105	VCC_12V	VCC_12V	VCC_12V	VCC_12V
106	VCC_12V	VCC_12V	VCC_12V	VCC_12V
107	VCC_12V	VCC_12V	VCC_12V	VCC_12V
108	VCC_12V	VCC_12V	VCC_12V	VCC_12V
109	VCC_12V	VCC_12V	VCC_12V	VCC_12V
110	GND (FIXED)	GND (FIXED)	GND (FIXED)	GND (FIXED)

Note1: PCIex1 lane 8 (PCIE_TX7+, PCIE_TX7-, PCIE_RX7+, PCIE_RX7-) is for onboard GbE LAN using.
Note2: **DO NOT** connect VBAT_RTC to GND directly, it may cause board damaging.

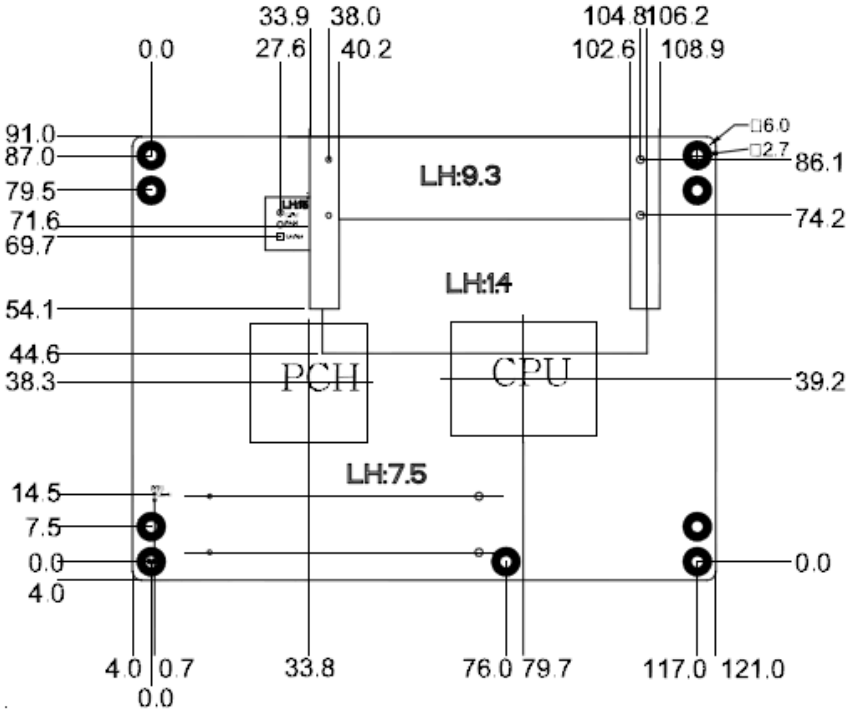
2.4. Specifying the boot BIOS (CN_HDR1 setting)

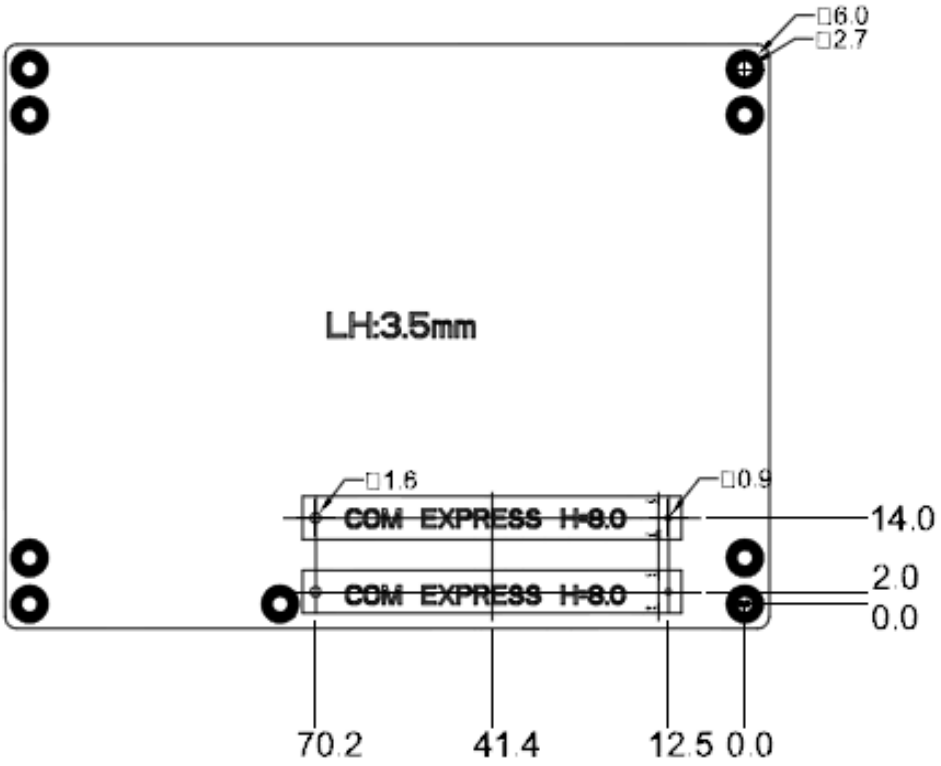
he COM Express module/Type6 typically supports the BIOS disable signal (BIOS_DIS1# and BIOS_DIS0#) and SPI_CS# signal. The BIOS disable signals are set on the carrier board.

The combination of these signals is used to define booting from module SPI or carrier board SPI/FWH. Below table shows the signals and jumper settings on the CN_HDR1 headers.

COM Express Connector Type6		**CN_HDR1 (Pin1,3,5)**	**CN_HDR1 (Pin2,4,6)**	**PCH CS# destination**	**BIOS Descriptor**
BIOS_DISABLE1# **(CN2_B88)**	BIOS_DISABLE0# **(CN2_A34)**				
1 **(Default)**	1 **(Default)**	**1-3 (Default)**	**2-4 (Default)**	**Module SPI @ CS0# Carry SPI @ CS1#**	**@ Module SPI**
1 **(Default)**	1 **(Default)**	**3-5**	**4-6**	**Module SPI @ CS1# Carry SPI @ CS0#**	**@ Carry SPI**
0	0	**Open**		**Carry FWH**	**Carry FWH**

2.5. Dimension Drawing





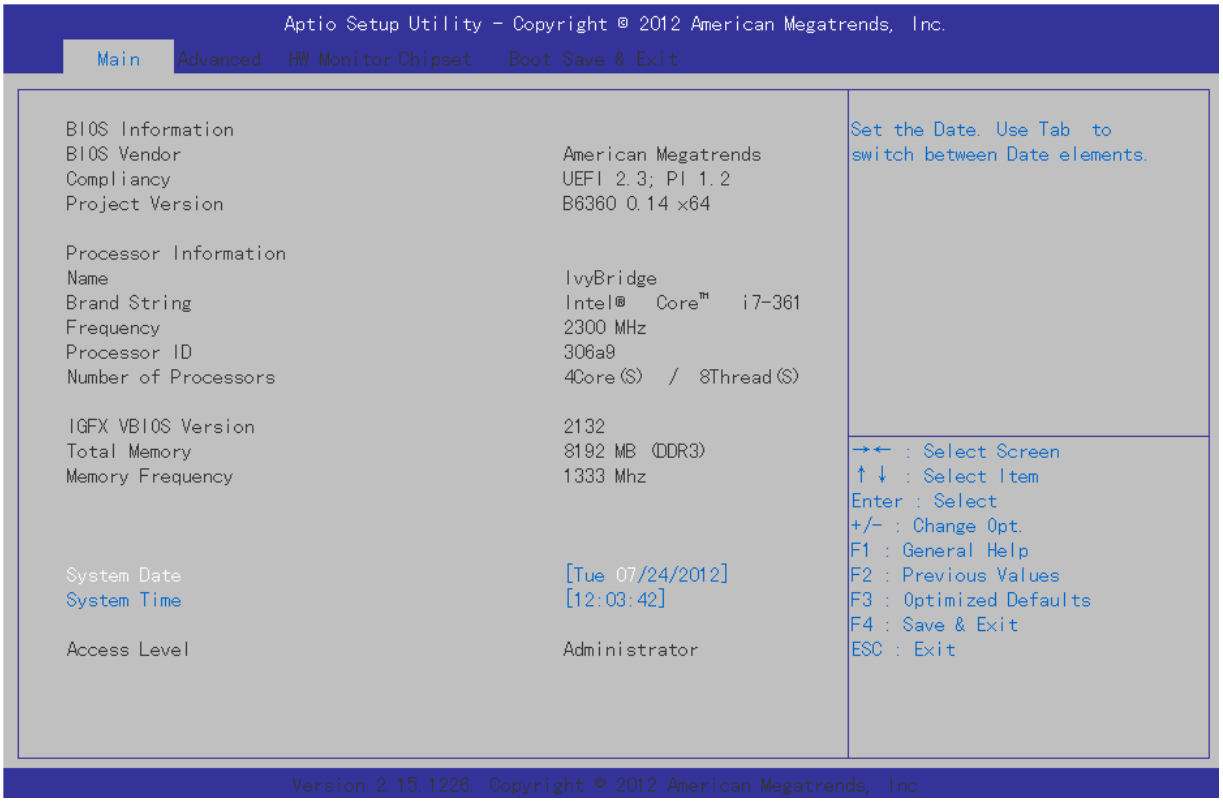
Chapter 3 BIOS Settings

This chapter describes the BIOS menu displays and explains how to perform common tasks needed to get the system up and running. It also gives detailed explanation of the elements found in each of the BIOS menus. The following topics are covered:

- Main Setup
- Advanced Setup
- HW Monitor
- Chipset Setup
- Boot Setup
- Save Exit Setup

3.1. Main Setup

Once you enter the AMI BOS™ CMOS Setup Utility, the Main Menu will appear on the screen. Use the arrow keys to highlight the item and then use the <Pg Up> <Pg Dn> keys to select the value you want in each item.

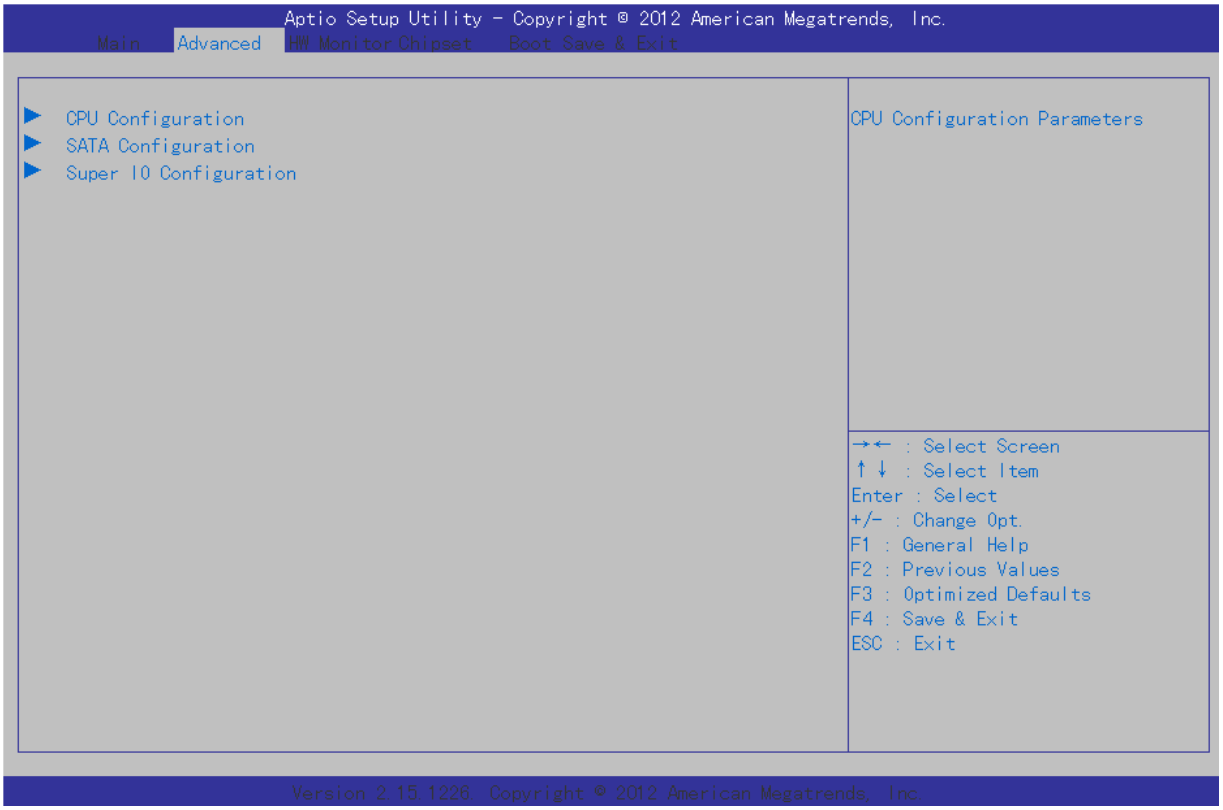


Note: Listed at the bottom of the menu are the control keys. If you need any help with the item fields, you can press the <F1> key, and it will display the relevant information.

Option	Choice	Description
BIOS Information	N/A	This item displays the BIOS Information
BIOS Vendor	N/A	This item displays the BIOS vendor
Compliancy	N/A	This item displays the BIOS Compliancy
Project Version	N/A	This item displays the Project name and BIOS's version

Processor Information	N/A	This item displays the CPU Information
Name	N/A	This item displays the CPU type
Brand String	N/A	This item displays the CPU processor.
Frequency	N/A	This item displays the CPU speed.
Processor ID	N/A	This item displays the CPU processor ID
Number of Processors	N/A	This item displays CPU # of cores and Threads.
IGFX VBIOS Version	N/A	This item displays the VBIOS's version.
Total Memory	N/A	This item displays the memory size that used.
Memory Frequency	N/A	This item displays the memory speed.
System Date	N/A	Set the system date. Note that the 'Day' automatically changes when you set the date
System Time	N/A	Set the system time.
Access Level	N/A	Set the system access level.

3.2. Advanced Setup


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Main Advanced HW Monitor Chipset Boot Save & Exit
CPU Configuration
SATA Configuration
Super IO Configuration
CPU Configuration Parameters
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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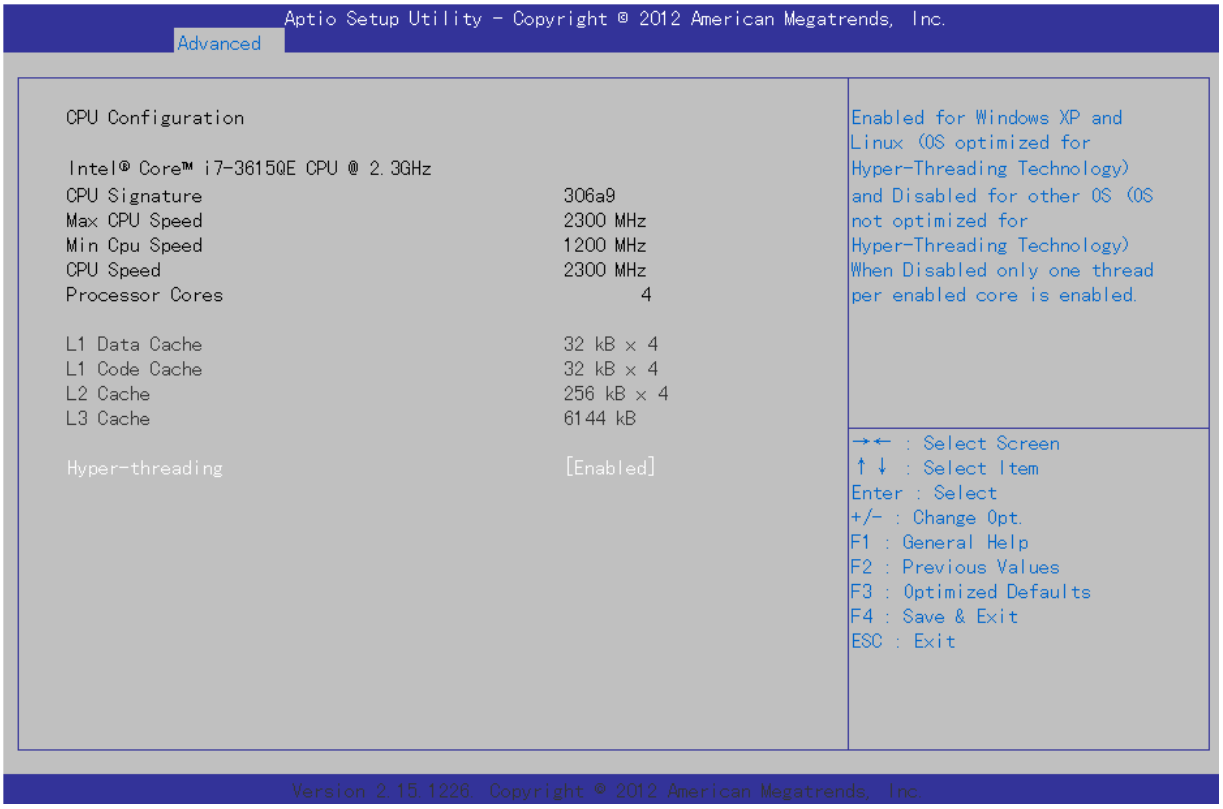
Option	Choice	Description
CPU Configuration	NA	CPU Configuration Parameters
SATA Configuration	NA	SATA Device Options Settings
Super IO Configuration	NA	System Super IO Chip Parameters.

3.2.1 CPU Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Advanced
CPU Configuration
Intel® Core™ i7-3615QE CPU @ 2.3GHz
CPU Signature 306a9
Max CPU Speed 2300 MHz
Min Cpu Speed 1200 MHz
CPU Speed 2300 MHz
Processor Cores 4
L1 Data Cache 32 kB x 4
L1 Code Cache 32 kB x 4
L2 Cache 256 kB x 4
L3 Cache 6144 kB
Hyper-threading [Enabled]
Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology) When Disabled only one thread per enabled core is enabled.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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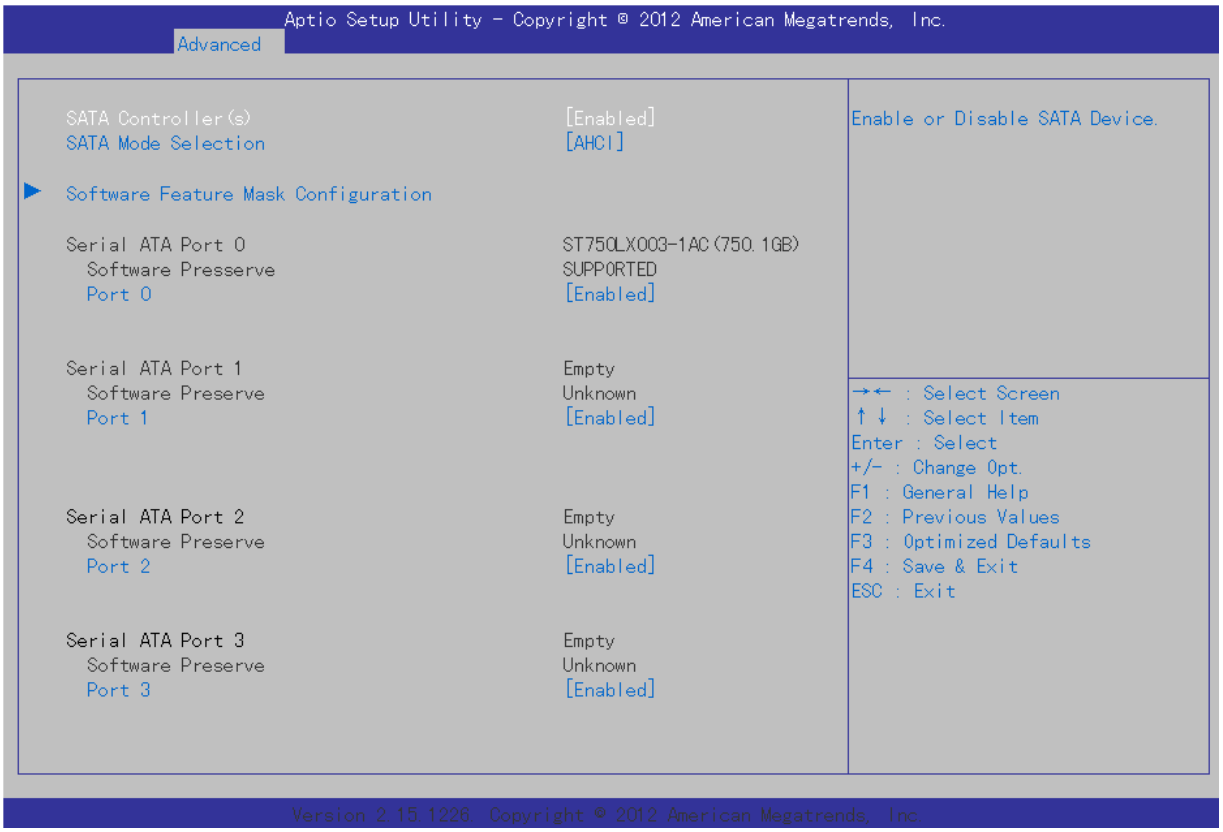
Option	Choice	Description
Hyper-threading	Enabled / Disabled	Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology) When Disabled only one thread per enabled core is enabled.

3.2.2 SATA Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Advanced
SATA Controller(s) [Enabled]
SATA Mode Selection [AHCI]
Software Feature Mask Configuration
Serial ATA Port 0 ST750LX003-1AC(750.1GB)
Software Presserve SUPPORTED
Port 0 [Enabled]
Serial ATA Port 1 Empty
Software Preserve Unknown
Port 1 [Enabled]
Serial ATA Port 2 Empty
Software Preserve Unknown
Port 2 [Enabled]
Serial ATA Port 3 Empty
Software Preserve Unknown
Port 3 [Enabled]
Enable or Disable SATA Device.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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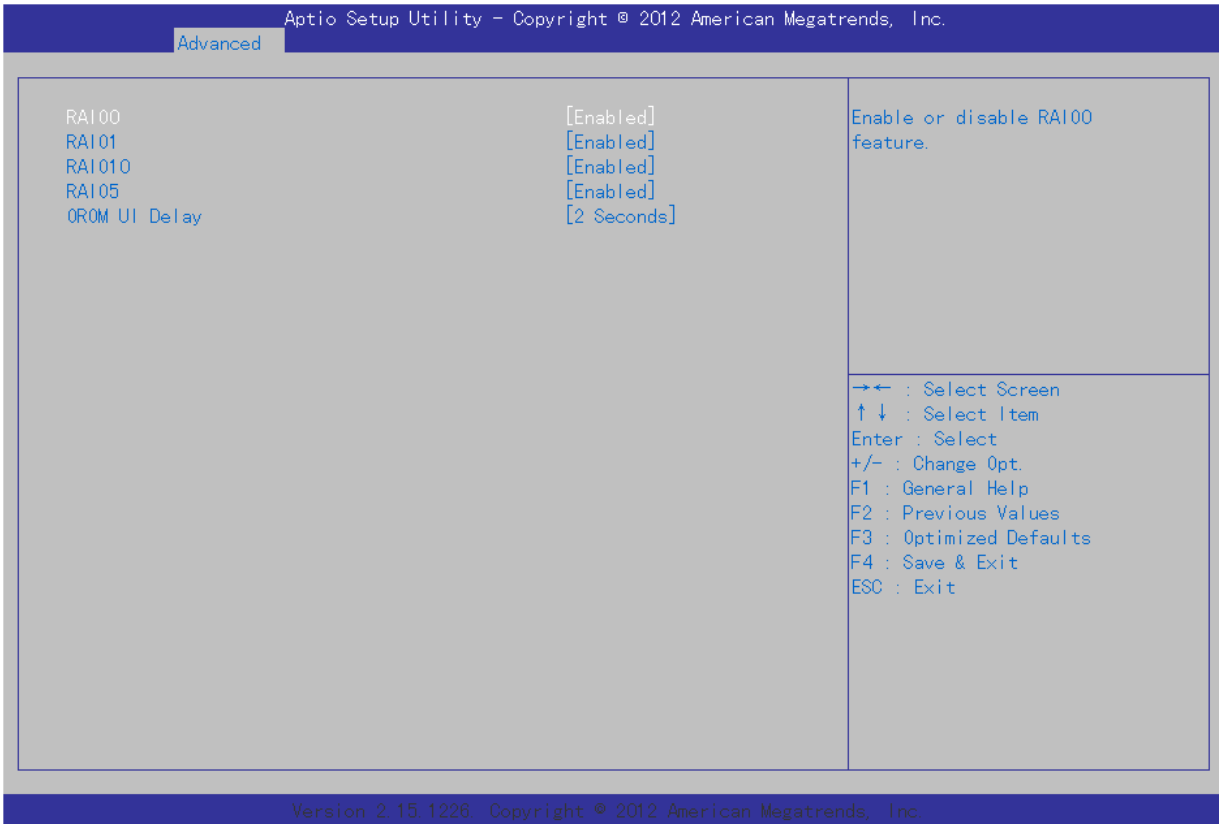
Option	Choice	Description
SATA Controller(s)	Enabled / Disabled	Enable or Disable SATA Device.
SATA Mode Selection	IDE / AHCI / RAID	Determines how SATA controller(s) operate.
Port 0~3	Enabled / Disabled	Enable or Disable SATA Prot

3.2.2.1 Software Feature Mask Configuration

When you choose RAID of “SATA Mode Selection”, It will appear a new item “Software Feature Mask Configuration”.


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Advanced
RAID0 [Enabled]
RAID1 [Enabled]
RAID10 [Enabled]
RAID5 [Enabled]
OROM UI Delay [2 Seconds]
Enable or disable RAID0 feature.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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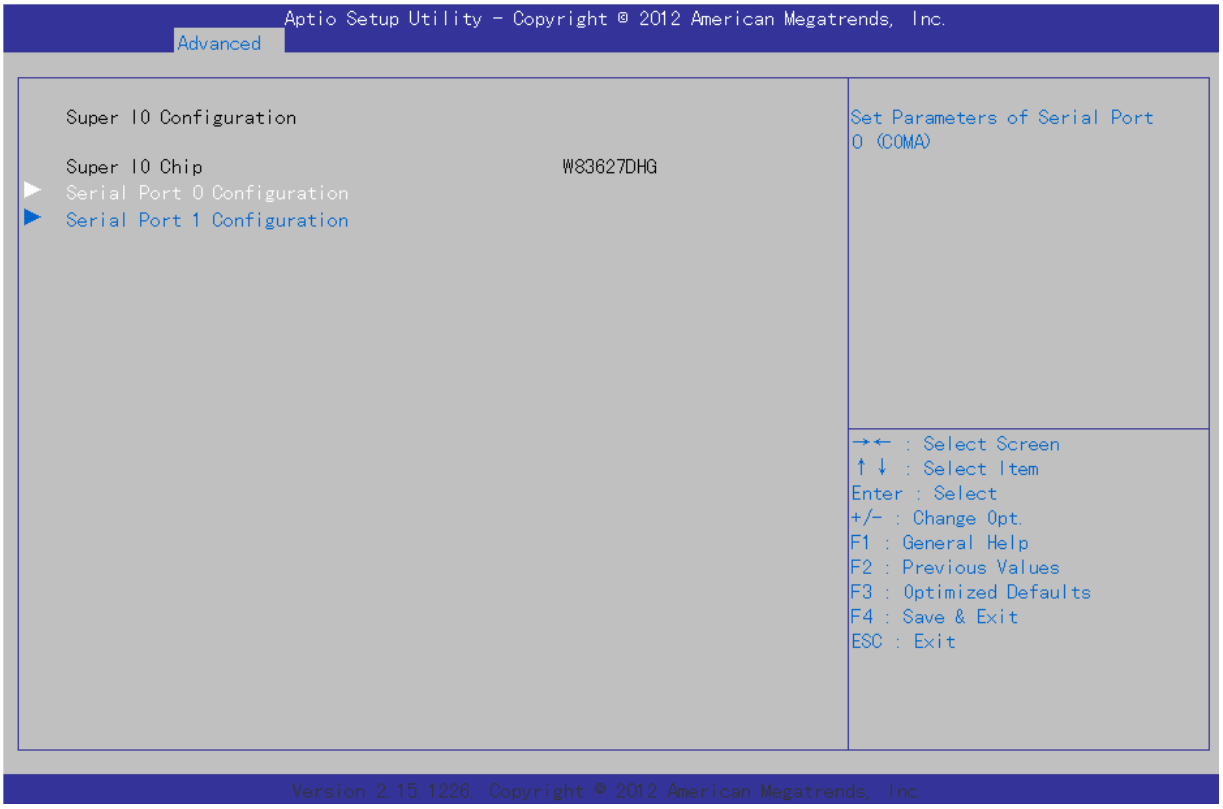
Option	Choice	Description
RAIO0	Enabled / Disabled	Enable or disable RAIO0 feature.
RAIO1	Enabled / Disabled	Enable or disable RAIO1 feature.
RAIO10	Enabled / Disabled	Enable or disable RAIO10 feature.
RAIO5	Enabled / Disabled	Enable or disable RAIO5 feature.
OROM UI Delay	2 Seconds / 4 Seconds / 6 Seconds / 8 Seconds	If enabled, indicated the delay of the OROM UI Splash Screen in a normal status.

3.2.3 Super IO Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Advanced
Super IO Configuration
Super IO Chip W83627DHG
Serial Port 0 Configuration
Serial Port 1 Configuration
Set Parameters of Serial Port 0 (COMA)
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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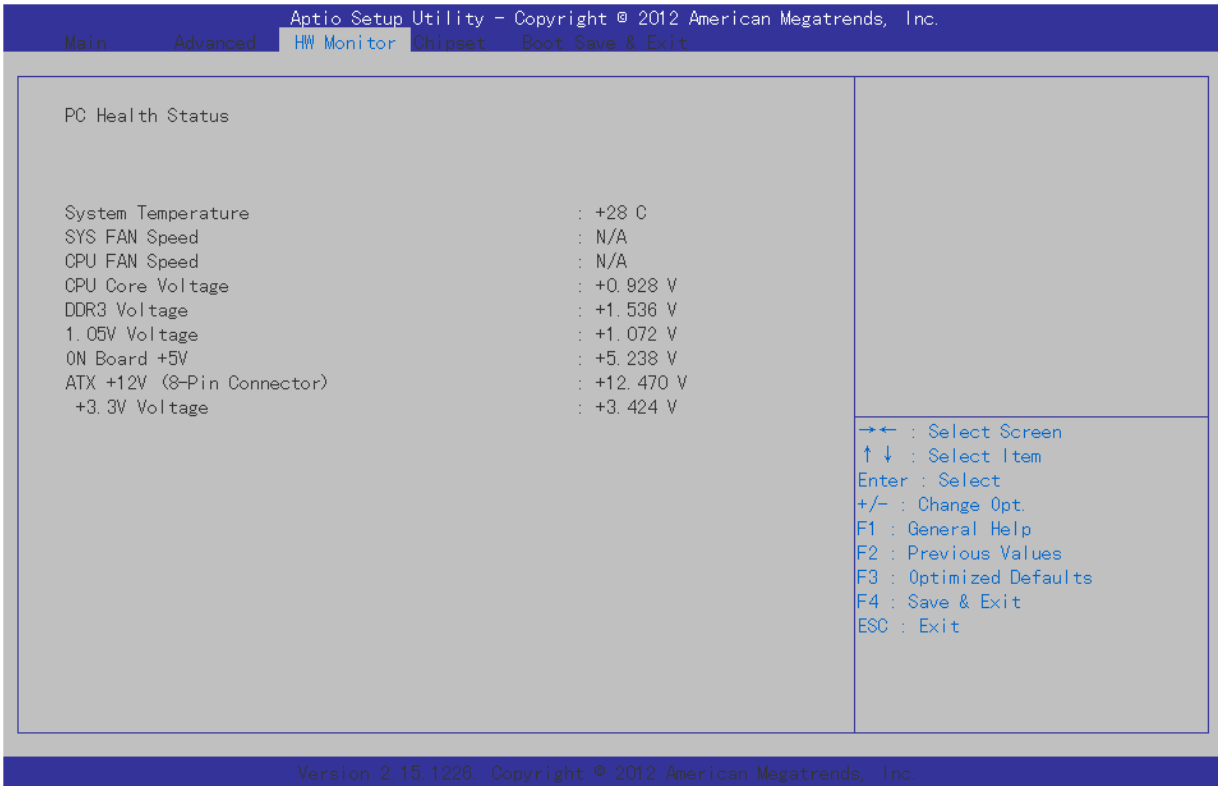
Option	Choice	Description
Serial Port 0 Configuration	NA	Set Parameters of Serial Port 0 (COMA)
Serial Port 1 Configuration	NA	Set Parameters of Serial Port 1 (COMB)

3.3. HW Monitor Setup


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Main Advanced HW Monitor Chipset Boot Save & Exit
PC Health Status
System Temperature : +28 C
SYS FAN Speed : N/A
CPU FAN Speed : N/A
CPU Core Voltage : +0.928 V
DDR3 Voltage : +1.536 V
1.05V Voltage : +1.072 V
ON Board +5V : +5.238 V
ATX +12V (8-Pin Connector) : +12.470 V
+3.3V Voltage : +3.424 V
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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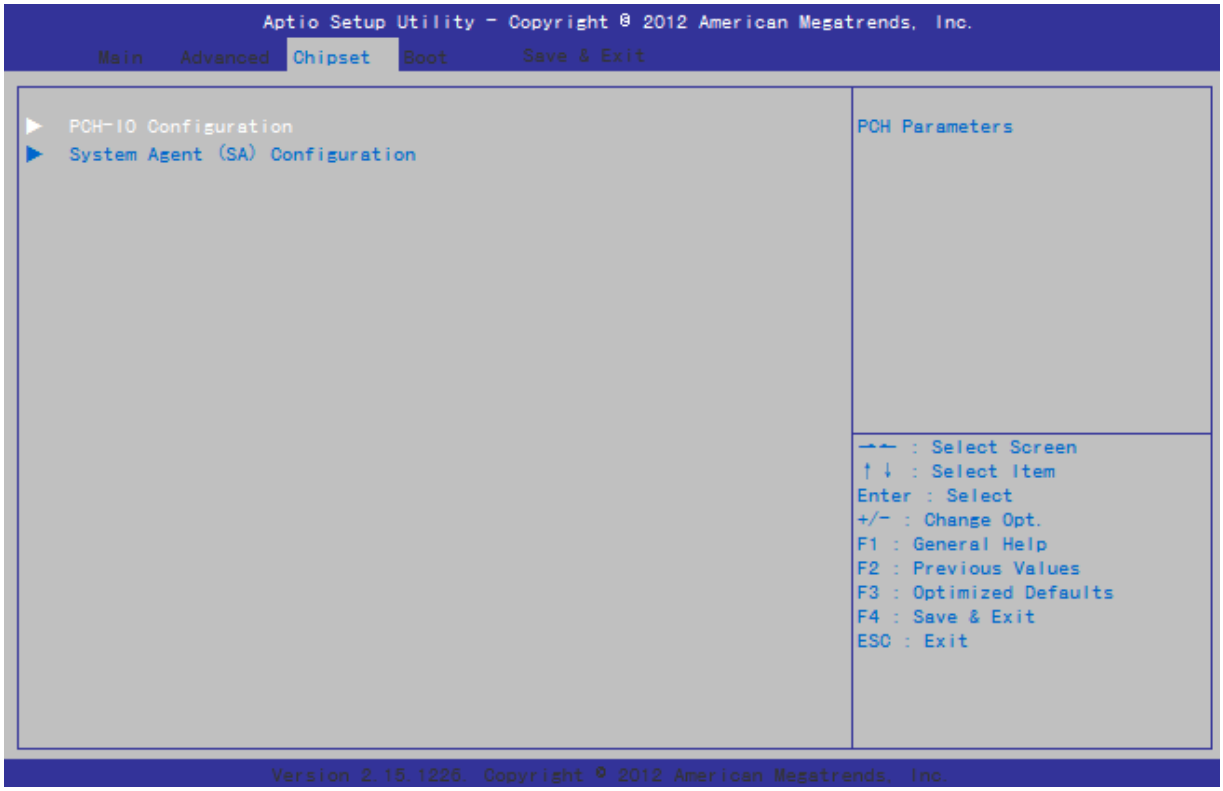
Option	Choice	Description
System Temperature	N/A	This item displays the System Temperature
SYS FAN Speed	N/A	This item displays the SYS FAN Speed
CPU FAN Speed	N/A	This item displays the CPU FAN Speed
CPU Core Voltage	N/A	This item displays the CPU Core Voltage
DDR3 Voltage	N/A	This item displays the DDR3 Voltage
1.05V Voltage	N/A	This item displays the 1.05V Voltage
ON Board +5V	N/A	This item displays the ON Board +5V Voltage

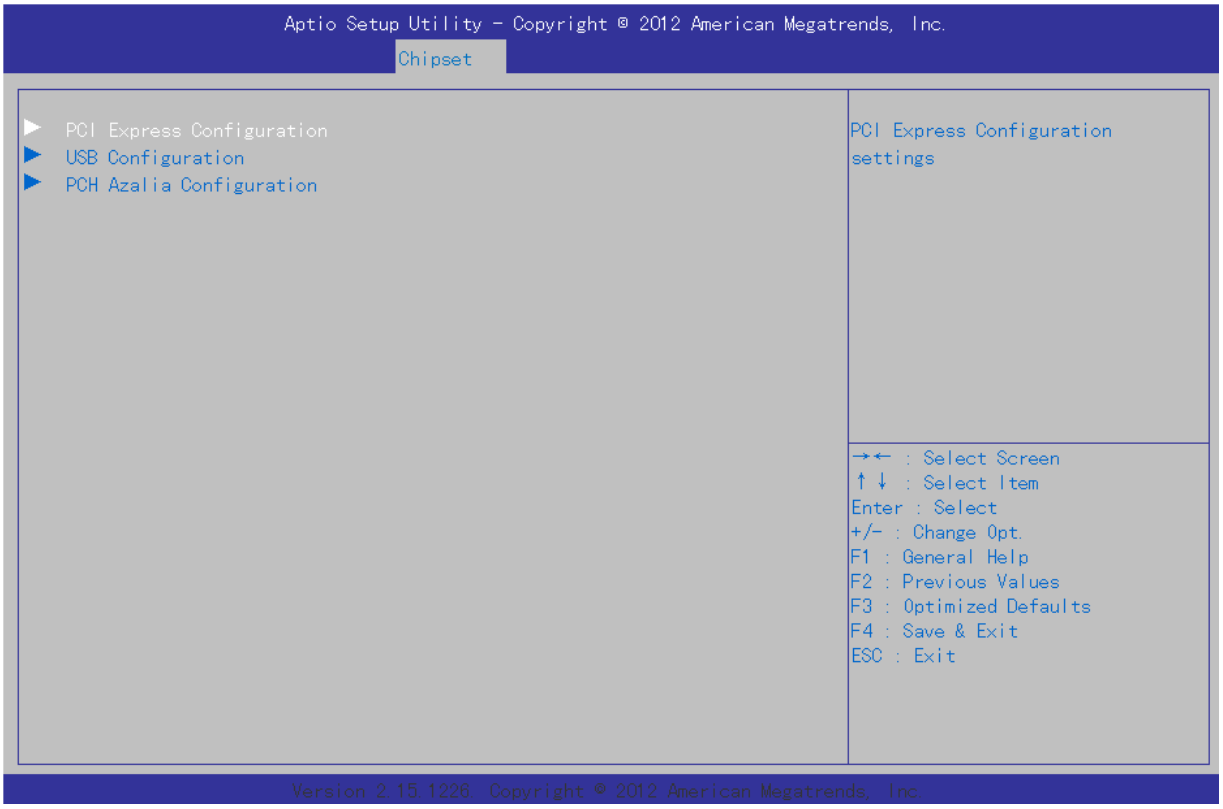
ATX +12V (8-Pin Connector)	N/A	This item displays the ATX +12V Voltage
+3.3V Voltage	N/A	This item displays the +3.3V Voltage

3.4. Chipset Setup



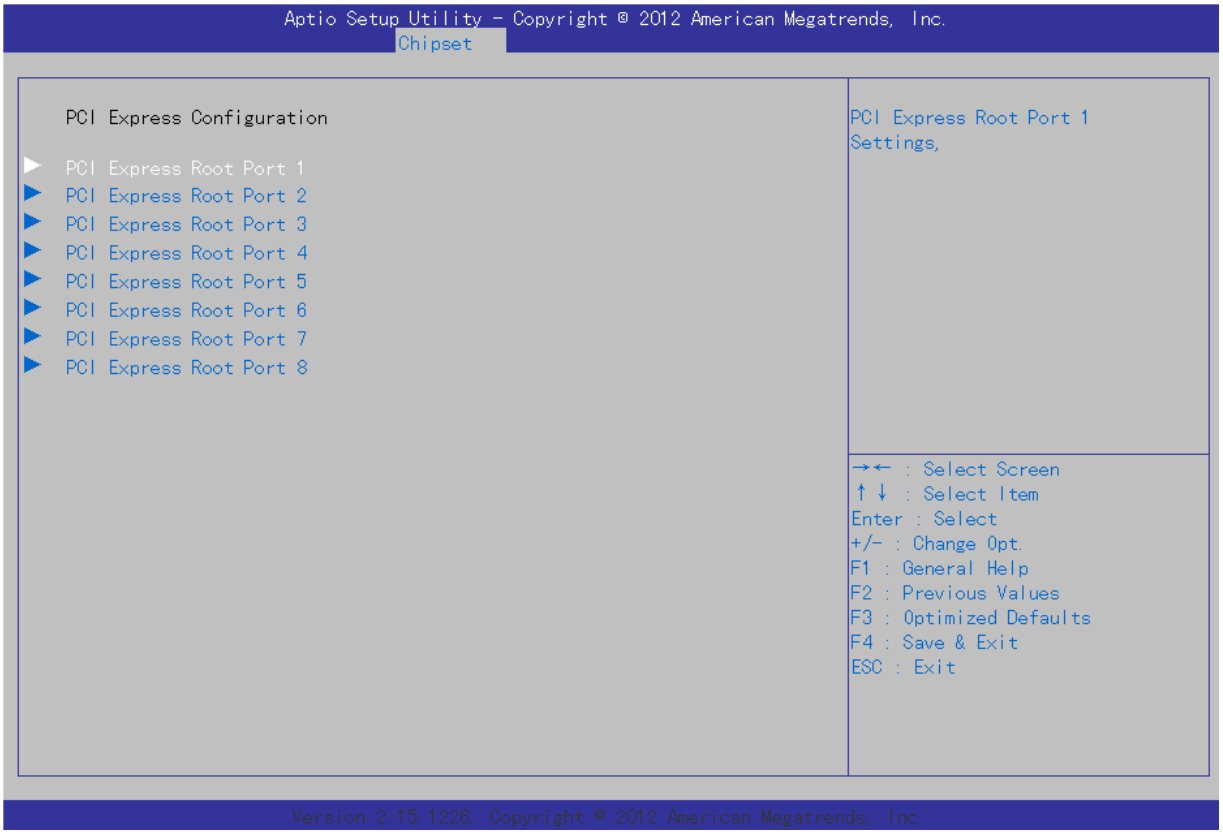
Option	Choice	Description
PCH-IO Configuration	NA	PCH Parameters
System Agent (SA) Configuration	NA	System Agent (SA) Parameters.

3.4.1 PCH-IO Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Chipset
PCI Express Configuration
USB Configuration
PCH Azalia Configuration
PCI Express Configuration settings
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

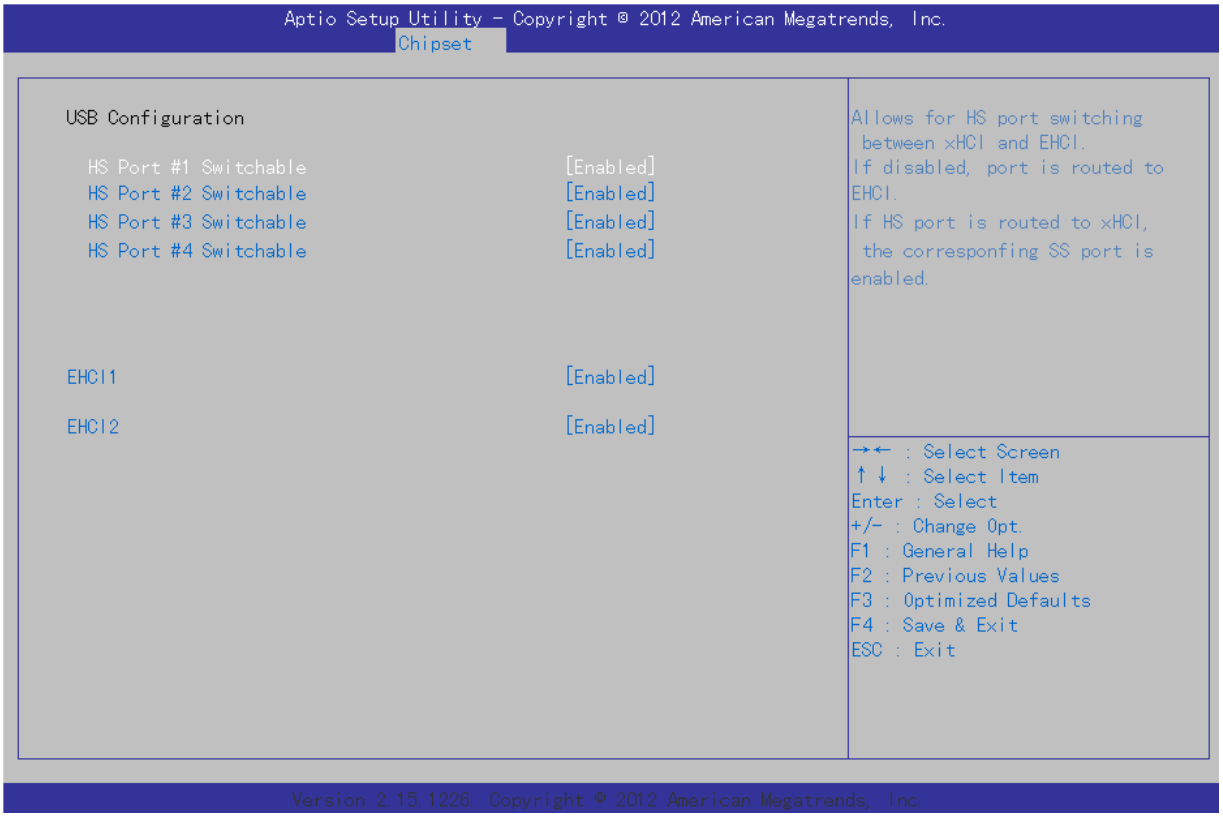
Option	Choice	Description
PCI Express Configuration	NA	PCI Express Configuration settings
USB Configuration	NA	USB Configuration settings
PCH Azalia Configuration	NA	PCH Azalia Configuration settings.

3.4.1.1 PCI Express Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Chipset
PCI Express Configuration
PCI Express Root Port 1
PCI Express Root Port 2
PCI Express Root Port 3
PCI Express Root Port 4
PCI Express Root Port 5
PCI Express Root Port 6
PCI Express Root Port 7
PCI Express Root Port 8
PCI Express Root Port 1 Settings,
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

Option	Choice	Description
PCI Express Root Port 1 ~8	NA	PCI Express Root Port 1 ~8 Settings.

3.4.1.2 USB Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Chipset
USB Configuration
HS Port #1 Switchable [Enabled]
HS Port #2 Switchable [Enabled]
HS Port #3 Switchable [Enabled]
HS Port #4 Switchable [Enabled]
EHCI1 [Enabled]
EHCI2 [Enabled]
Allows for HS port switching between xHCI and EHCI.
If disabled, port is routed to EHCI.
If HS port is routed to xHCI, the corresponfing SS port is enabled.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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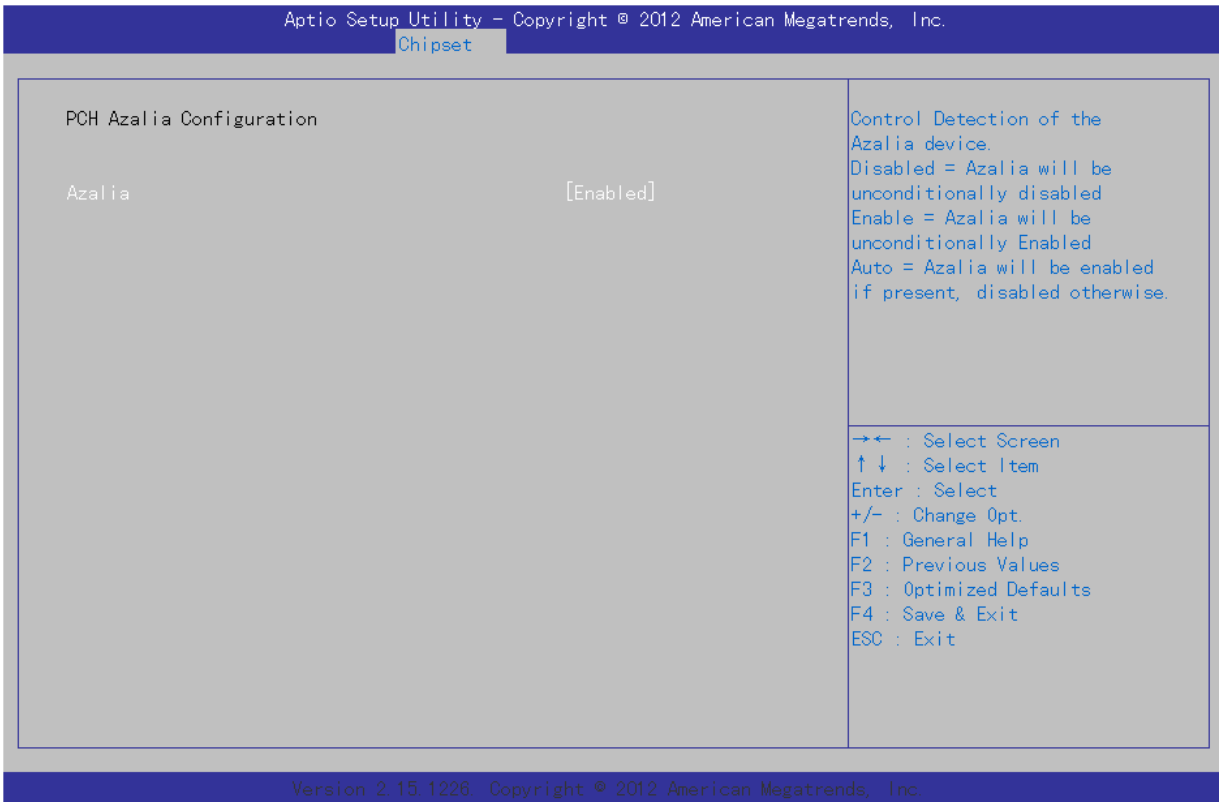
Option	Choice	Description
HS Port #1~4 Switchable	Enabled / Disabled	Allows for HS port switching between xHCI and EHCI. If disabled, port is routed to EHCI. If HS port is routed to xHCI the corresponding SS port is enabled.
EHCI1	Enabled / Disabled	Control the USB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.
EHCI2	Enabled / Disabled	Control the USB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.

3.4.1.3 CH Azalia Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Chipset
PCH Azalia Configuration
Azalia
[Enabled]
Control Detection of the Azalia device.
Disabled = Azalia will be unconditionally disabled
Enable = Azalia will be unconditionally Enabled
Auto = Azalia will be enabled if present, disabled otherwise.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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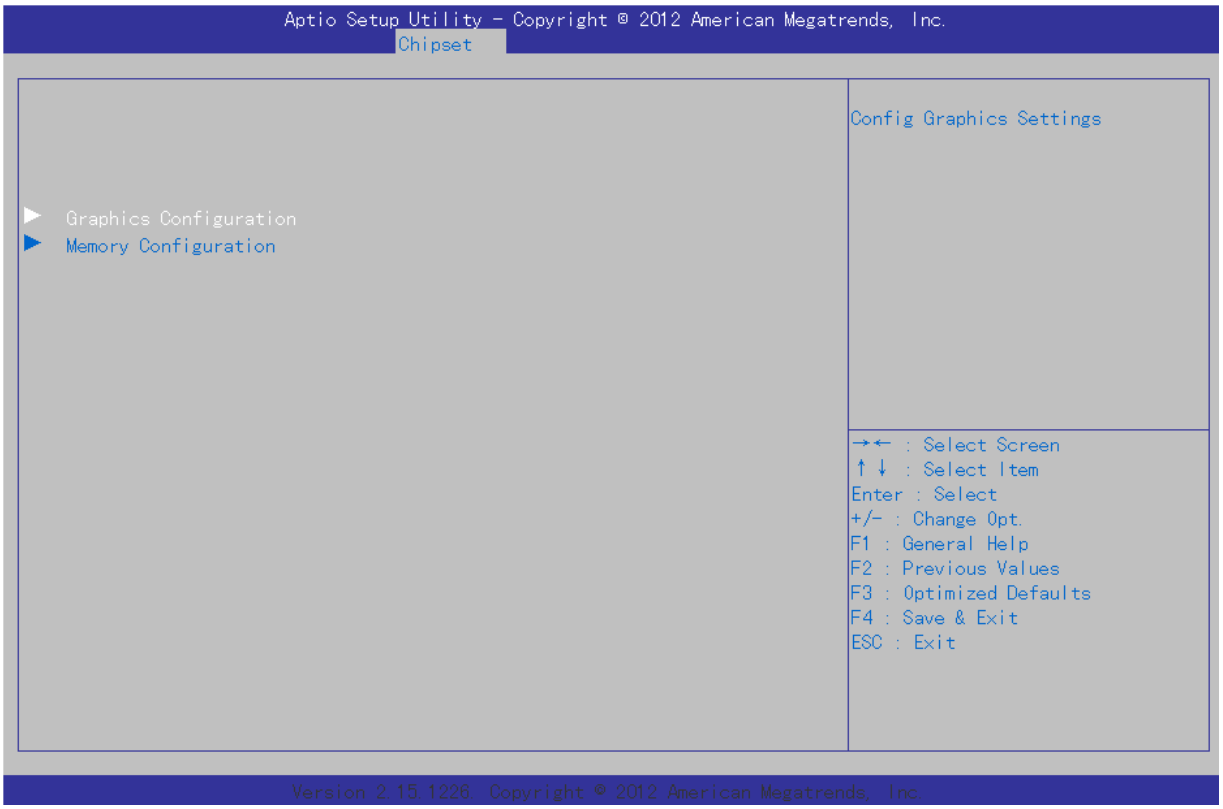
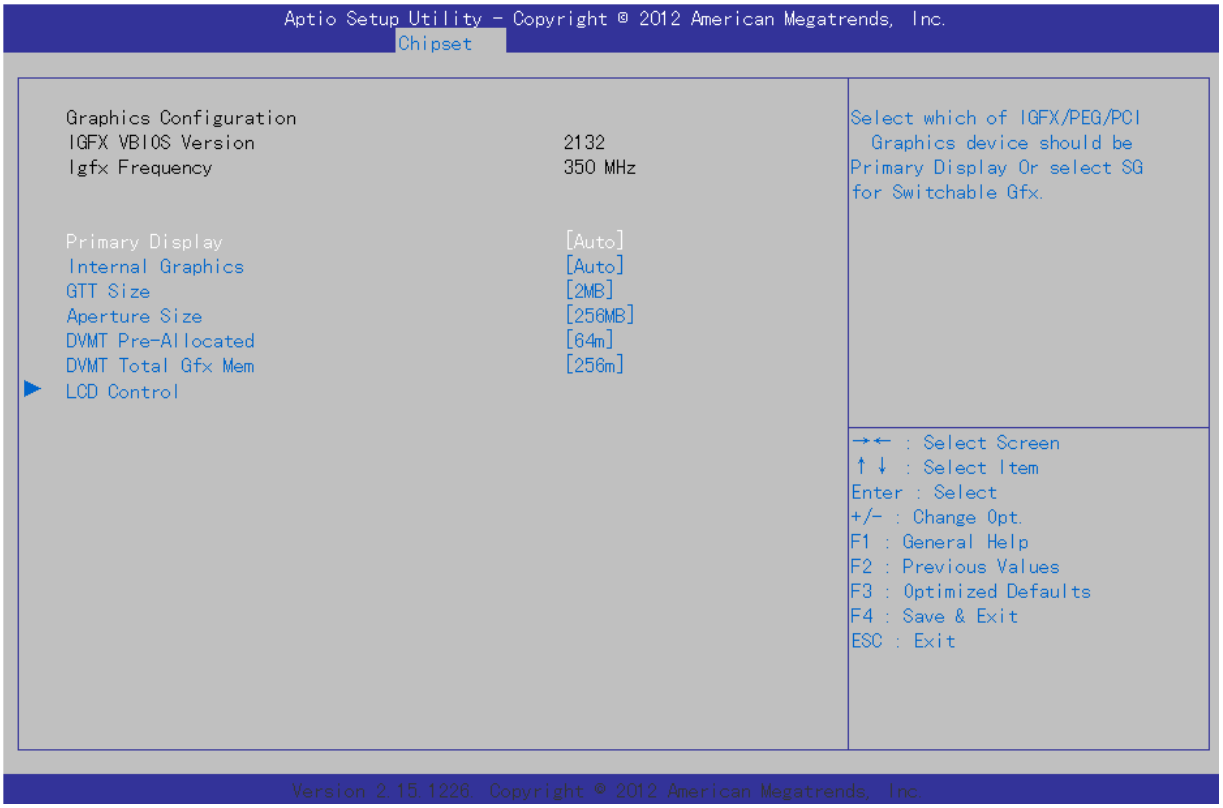
Option	Choice	Description
Azalia	Enabled / Disabled / Auto	Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled Enabled = Azalia will be unconditionally Enabled Auto = Azalia will be enabled if present, disabled otherwise.

3.4.2 System Agent (SA) Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Chipset
Graphics Configuration
Memory Configuration
Config Graphics Settings
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

Option	Choice	Description
Graphics Configuration	NA	Configure Graphics Settings.
Memory Configuration	NA	Memory Configuration Parameters

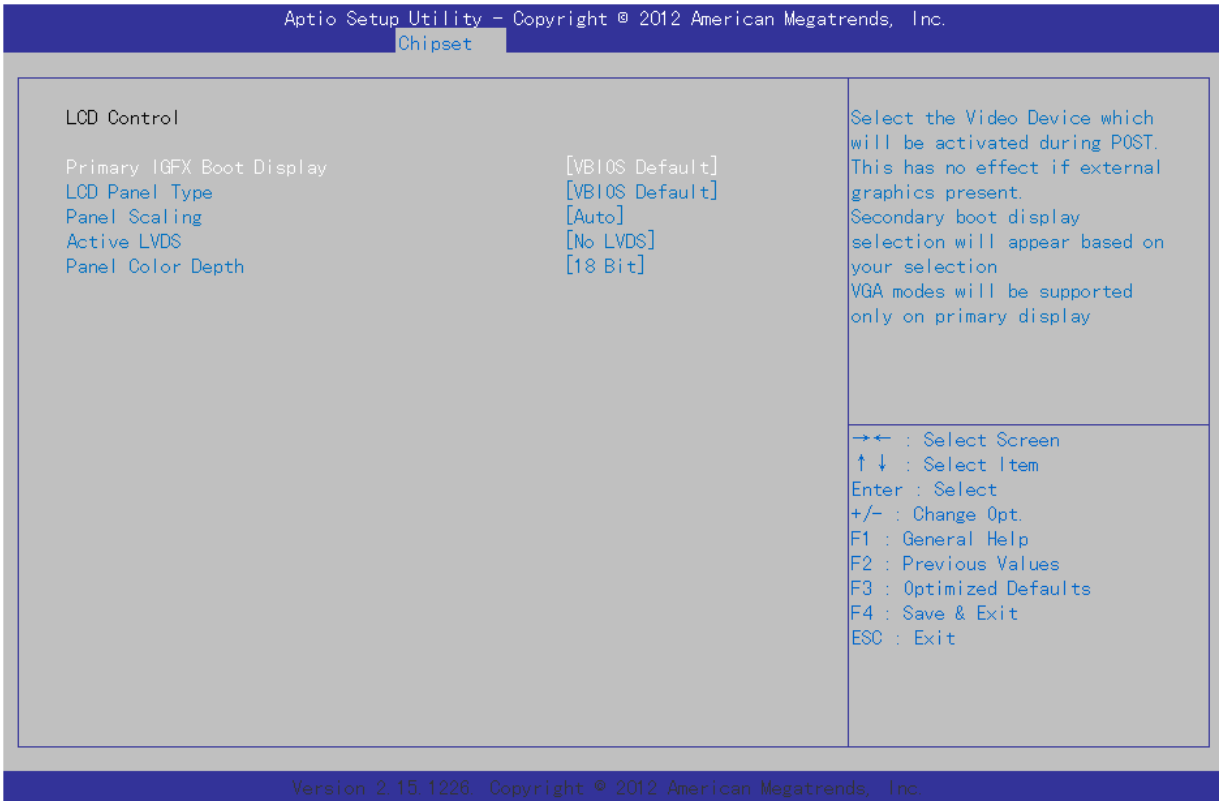
3.4.2.1 Graphics Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Chipset
Graphics Configuration
IGFX VBIOS Version 2132
Igfx Frequency 350 MHz
Primary Display [Auto]
Internal Graphics [Auto]
GTT Size [2MB]
Aperture Size [256MB]
DVMT Pre-Allocated [64m]
DVMT Total Gfx Mem [256m]
LCD Control
Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG for Switchable Gfx.
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

Option	Choice	Description
Primary Display	Auto / IGFX / PEG / PCI / SG	Select which of IGFX/PEG/PCI Graphics device should be Primary Display 0r select SG for Switchable Gfx.
Internal Graphics	Auto / Disabled / Enabled	Keep IGD enabled based on the setup options.
GTT Size	1MB / 2MB	Select the GTT Size
Aperture Size	128MB / 256MB / 512MB	Select the Aperture Size
DVMT Pre-Allocated	32M / 64M / 96M / 128M / 160M / 192M / 224M / 256M / 288M / 320M / 352M / 384M / 416M / 448M / 480M / 512M / 1024M	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
DVMT Total Gfx Mem	128M / 258M / MAX	Select DVMT 5.0 Total Graphics Memory size used by the Internal Graphics Device.

LCD Control	NA	LCD Control

3.4.2.1.1 LCD Control


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Chipset
LCD Control
Primary IGFX Boot Display [VBIOS Default]
LCD Panel Type [VBIOS Default]
Panel Scaling [Auto]
Active LVDS [No LVDS]
Panel Color Depth [18 Bit]
Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection VGA modes will be supported only on primary display
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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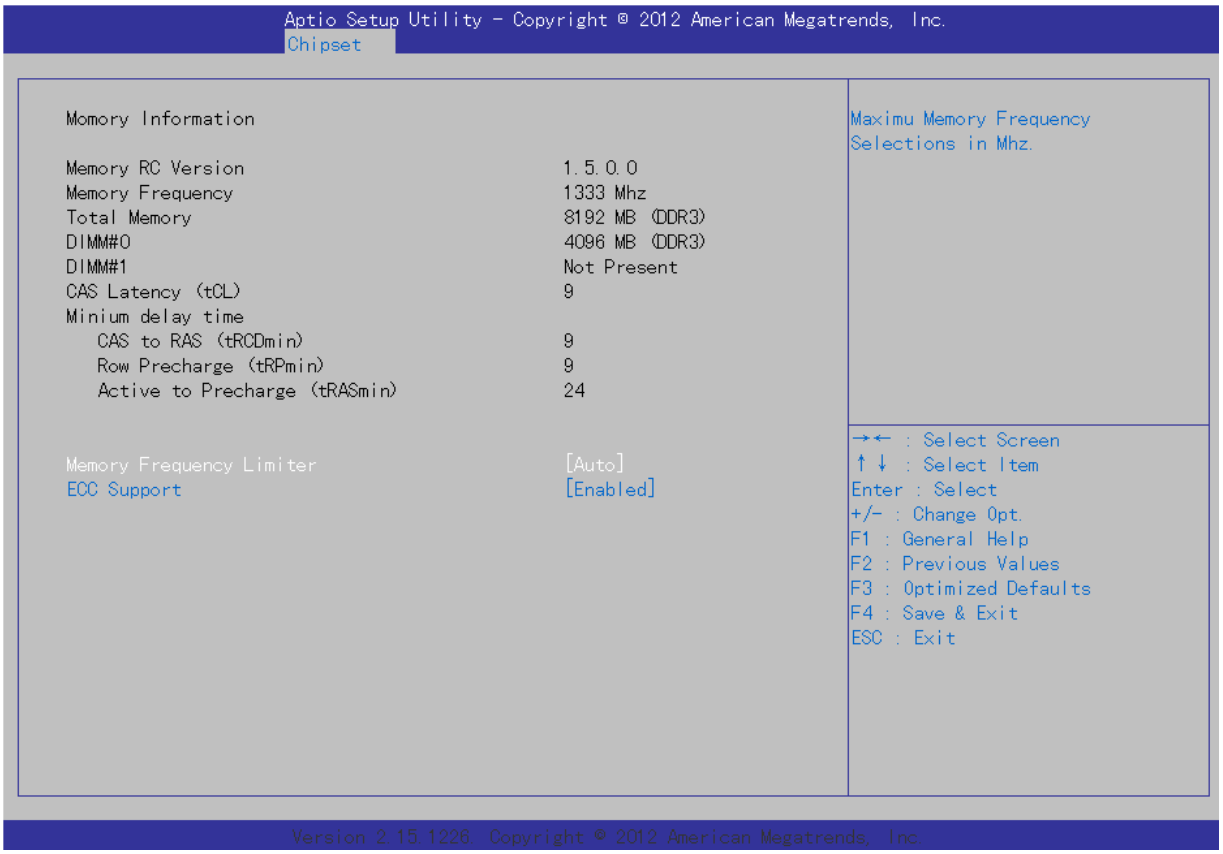
Option	Choice	Description
Primary IGFX Boot Display	VBIOS Default / D-SUB / SDVO / LVDS / HDMI 2 / HDMI 1	Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection VGA modes will be supported only on primary display.
LCD Panel Type	VBIOS Default / 640x480 LVDS / 800x600 LVDS / 1280x1024 LVDS / 1366x768 LVDS / 1680x1050 LVDS / 1440x900 LVDS / 1600x900 LVDS / 1280x800 LVDS	Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.
Panel Scaling	Auto / Off /Force Scaling	Select the LCD panel scaling option used by the Internal Graphics Device.

Active LVDS	No LVDS/ Int-LVDS	Select the Active LFP Configuration. No LVDS: VBIOS does not enable LVDS. Int-LVDS: VBIOS enables LVDS driver by Integrated encoder. SDVO LVDS: VBIOS enables LVDS driver by SDVO encoder. eDP Port-A: LFP Driven by Int-DisplayPort encoder from Port-A.
Panel Color Depth	18 Bit /24 Bit	Select the LFP Panel Color Depth

3.4.2.2 Memory Configuration


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Chipset
Momory Information
Memory RC Version 1.5.0.0
Memory Frequency 1333 Mhz
Total Memory 8192 MB (DDR3)
DIMM#0 4096 MB (DDR3)
DIMM#1 Not Present
CAS Latency (tCL) 9
Minium delay time
CAS to RAS (tRCDmin) 9
Row Precharge (tRPmin) 9
Active to Precharge (tRASmin) 24
Memory Frequency Limiter [Auto]
ECC Support [Enabled]
Maximu Memory Frequency Selections in Mhz.
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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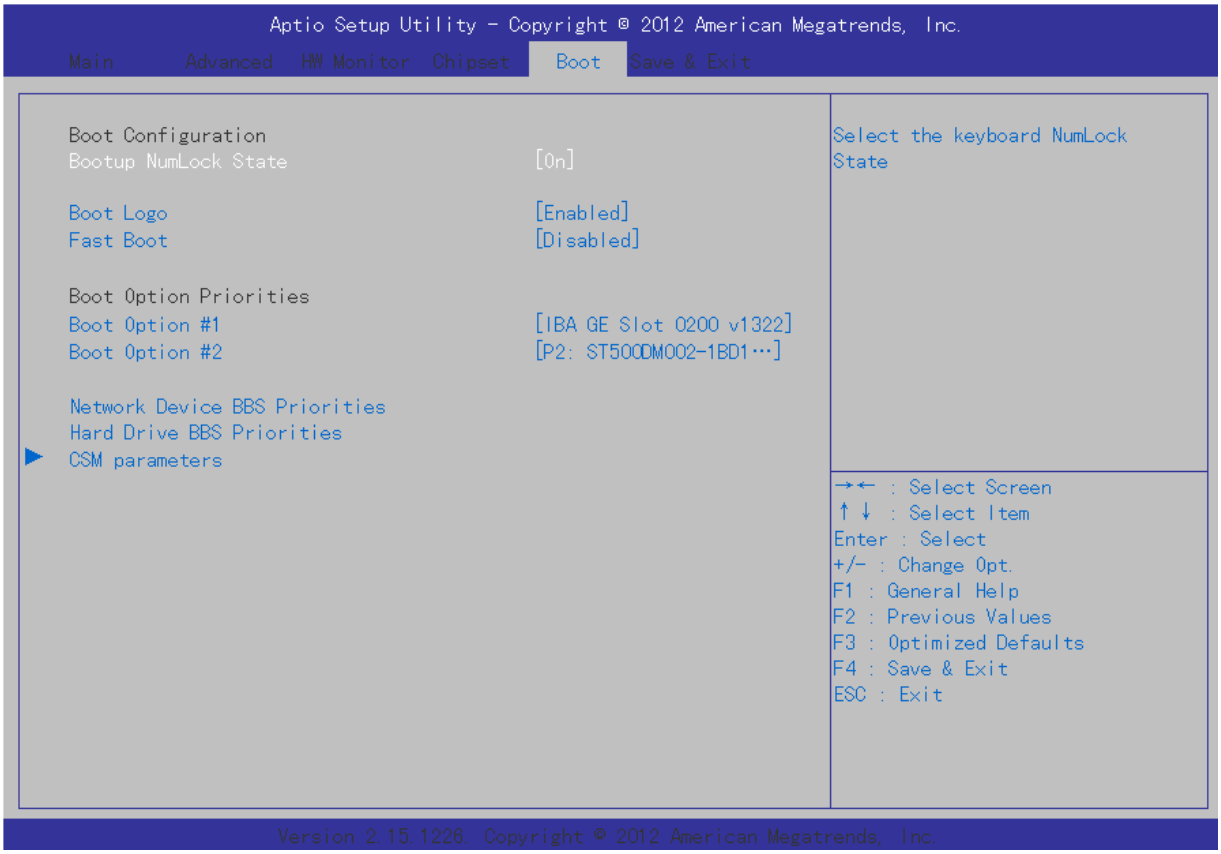
Option	Choice	Description
Memory Frequency Limiter	Auto / 1067 / 1333 / 1600 / 1867 / 2133 / 2400 / 2667	Maximum Memory Frequency Selections in Mhz.
ECC Support	Disabled / Enabled	Enable or disable DDR ECC Support

3.5. Boot Setup


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Main Advanced HW Monitor Chipset Boot Save & Exit
Boot Configuration
Bootup NumLock State [On]
Boot Logo [Enabled]
Fast Boot [Disabled]
Boot Option Priorities
Boot Option #1 [IBA GE Slot 0200 v1322]
Boot Option #2 [P2: ST500DM002-1BD1…]
Network Device BBS Priorities
Hard Drive BBS Priorities
CSM parameters
Select the keyboard NumLock State
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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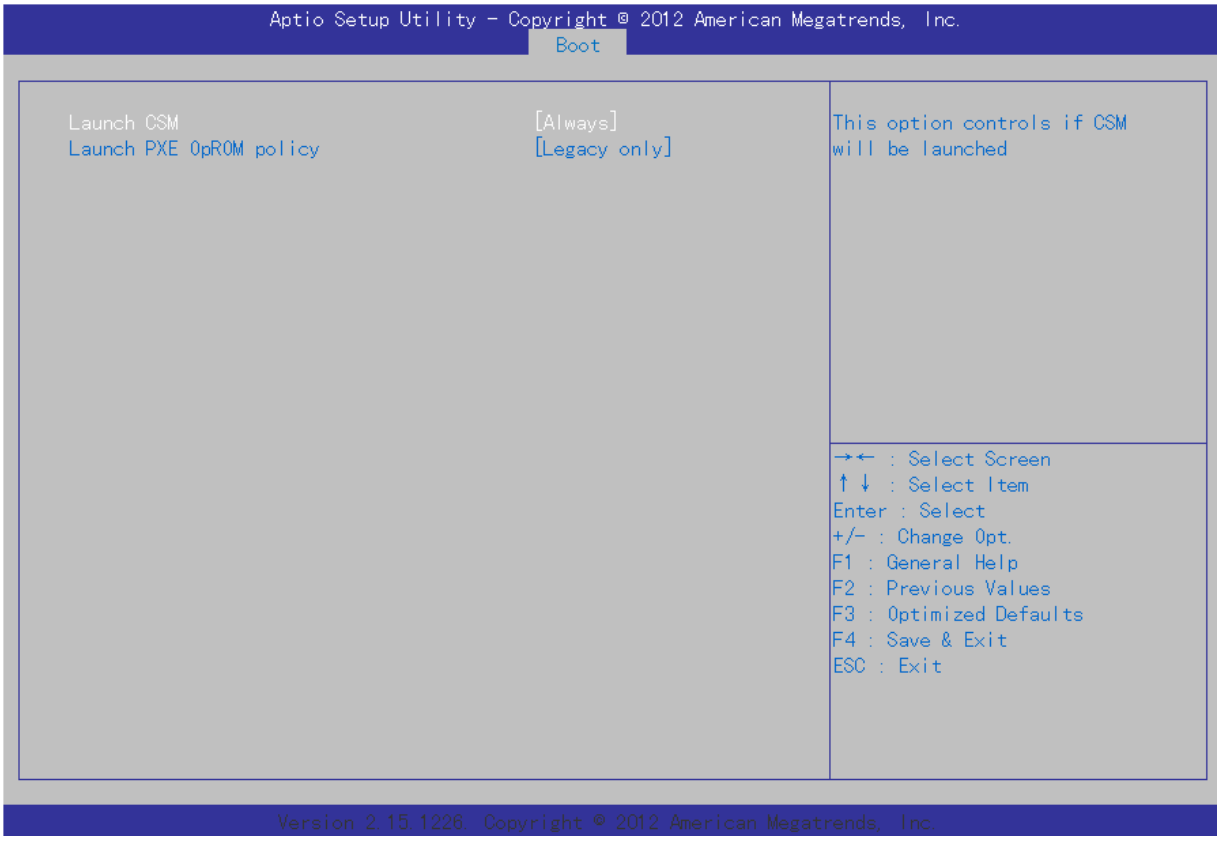
Option	Choice	Description
Boot up Num Lock State	On / Off	Select the keyboard Num Lock State
Boot Loge	Disabled / Enabled	Enables or disables Quiet Boot option
Fast Boot	Disabled / Enabled	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.
Boot Option #1	IBA GE Slot 0200 v1322 / UEFI: IP4 Intel ® 82574L Gigabit Network Connection / UEFI: IP6 Intel ® 82574L Gigabit Network	Sets the system boot order

	Connection / Disabled	
Boot Option #2	IBA GE Slot 0200 v1322 / UEFI: IP4 Intel ® 82574L Gigabit Network Connection / UEFI: IP6 Intel ® 82574L Gigabit Network Connection / Disabled	Sets the system boot order
Network Device BBS Priorities	NA	Set the order of the legacy devices in this group
Hard Drive BBS Priorities	NA	Set the order of the legacy devices in this group
CSM parameters	NA	Op ROM execution, boot options filter, etc.

3.5.1 CSM parameters


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Boot
Launch CSM
[Always]
Launch PXE OpROM policy
[Legacy only]
This option controls if CSM will be launched
→← : Select Screen
↑ ↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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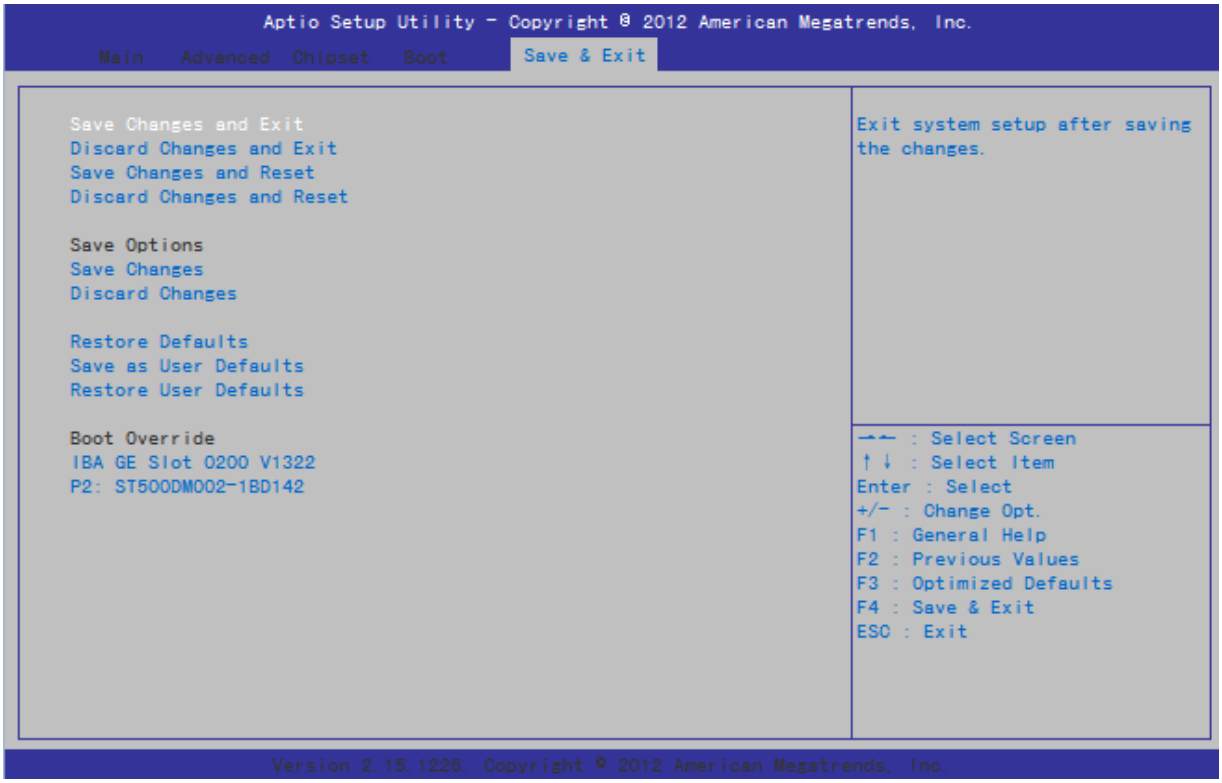
Option	Choice	Description
Launch CSM	Always / Never	This option controls if CSM will be launched
Launch PXE OpROM policy	Do not launch / UEFI only / Legacy only	Controls the execution of UEFI and Legacy PXE OpROM

3.6. Save & Exit Setup


Aptio Setup Utility – Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Save & Exit
Save Changes and Exit
Discard Changes and Exit
Save Changes and Reset
Discard Changes and Reset
Save Options
Save Changes
Discard Changes
Restore Defaults
Save as User Defaults
Restore User Defaults
Boot Override
IBA GE Slot 0200 V1322
P2: ST500DM002-1BD142
Exit system setup after saving the changes.
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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option	Choice	Description
Save Changes and Exit	Pressing <Enter> on this item for save changes and exit.	Exit system setup after saving the changes.
Discard Changes and Exit	Pressing <Enter> on this item for discard changes and exit.	Exit system setup without saving any changes.

Save Changes and Reset	Pressing <Enter> on this item for confirmation : Save configuration and reset	Reset the system after saving the changes.
Discard Changes and Reset	Pressing <Enter> on this item for confirmation: Reset without saving	Reset system setup without saving any changes.
Save Changes	Pressing <Enter> on this item for confirmation: Load Previous Values	Save Changes done so far to any of the setup options.
Discard Changes	Pressing <Enter> on this item for confirmation: Save configuration	Discard Changes done so far to any of the setup options.
Restore Defaults	Pressing <Enter> on this item for confirmation: Load Previous Values	Restore/Load Default values for all the setup options.
Save as User Defaults	Pressing <Enter> on this item for confirmation: Load Optimized Defaults	Save the changes done so far as User Defaults.
Restore User Defaults	Pressing <Enter> on this item for confirmation: Save configuration	Restore the User Defaults to all the setup options.

Chapter 4 Driver And Utility Installation

4.1. Driver CD Interface Introduction

Acrosser provides the a driver CD, which includes the drivers, utilities, applications and documents. For Windows environment, it can be guided by the setup program; for Linux environment, the related files can be found at folder “ACMB6360\Linux”.

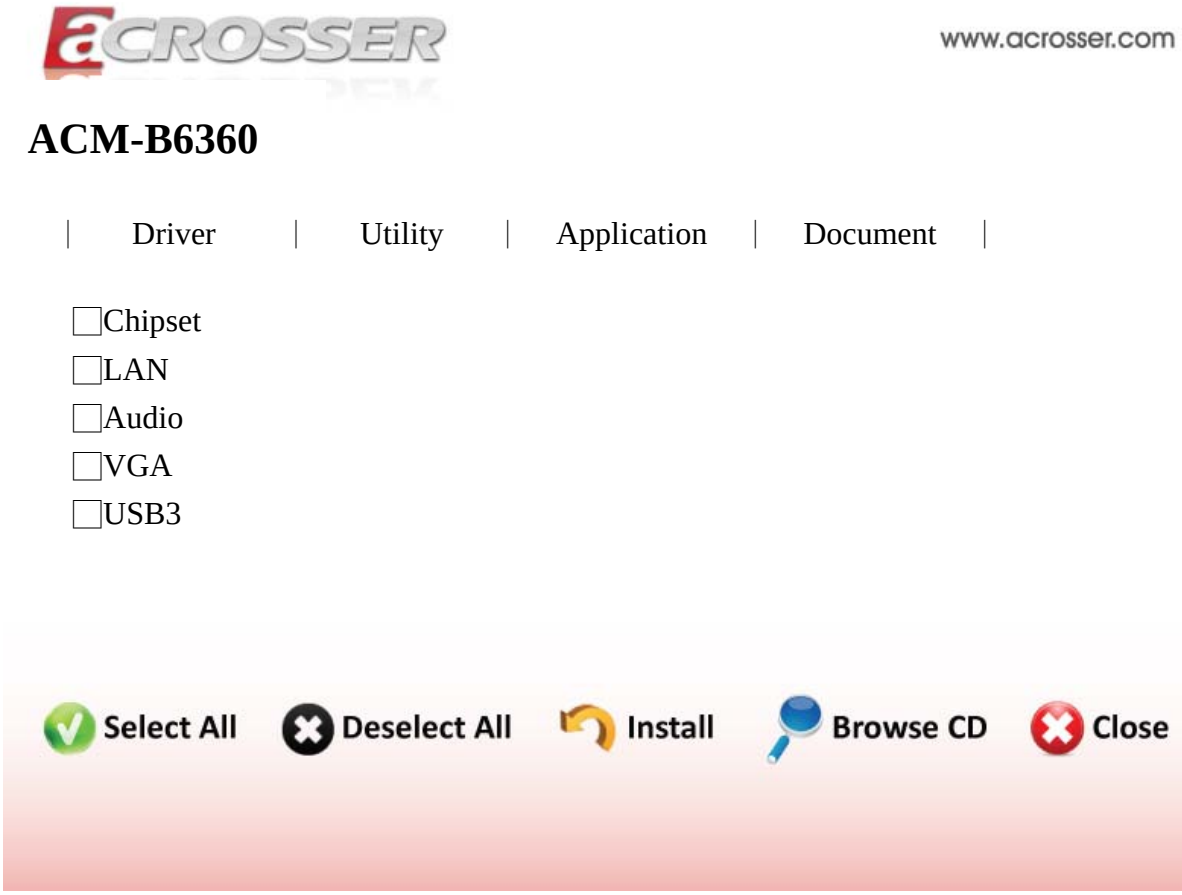
Once putting the CD into the optical disk drive, it will run automatically. The driver CD will also detect the MB information to see if they are matched. The following error messages appear if you get an incorrect driver CD.

It indicates that the board information is not available.

It indicates that the program gets wrong board information.

4.1.1 Driver Page

This is the Driver Installation Page.



Click the icon, all the drivers will be selected.

www.acrosser.com

ACM-B6360

| Driver | Utility | Application | Document |

- ☐ Chipset
- ☐ LAN
- ☐ Audio
- ☐ VGA
- ☐ USB3

Click the icon, all selected items will be cleared.

www.acrosser.com

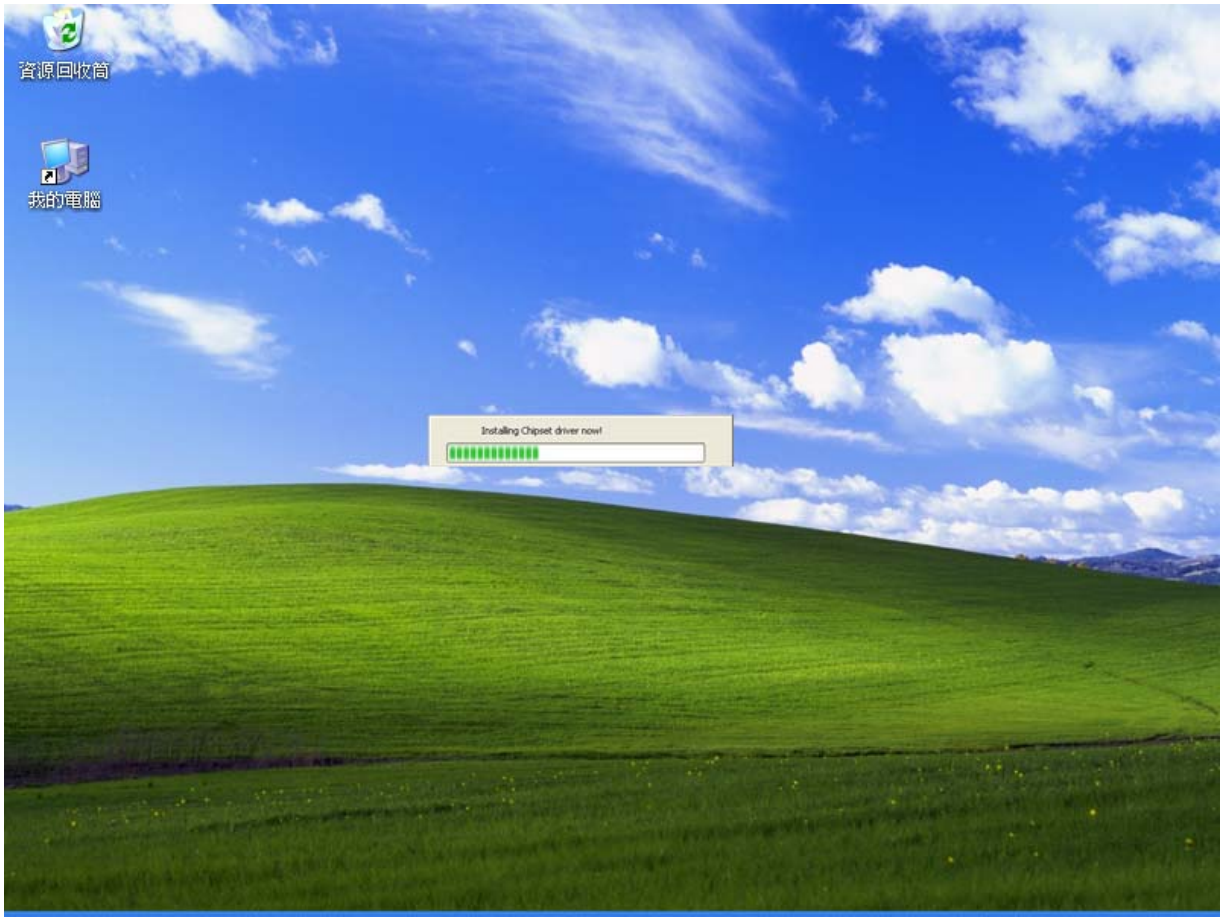
ACM-B6360

| Driver | Utility | Application | Document |

☐Chipset
☐LAN
☐Audio
☐VGA
☐USB3

Click the icon to install the selected drivers.

The progress bar shows up. The main window will temporarily disappear.



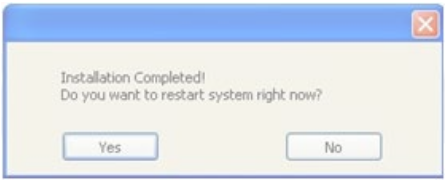
Please click ‘Yes’ to restart the system.

www.acrosser.com

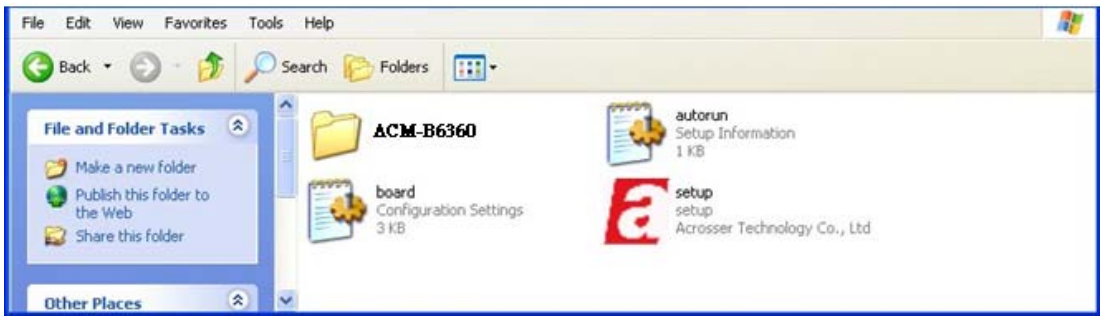
ACM-B6360

| Driver | Utility | Application | Document |

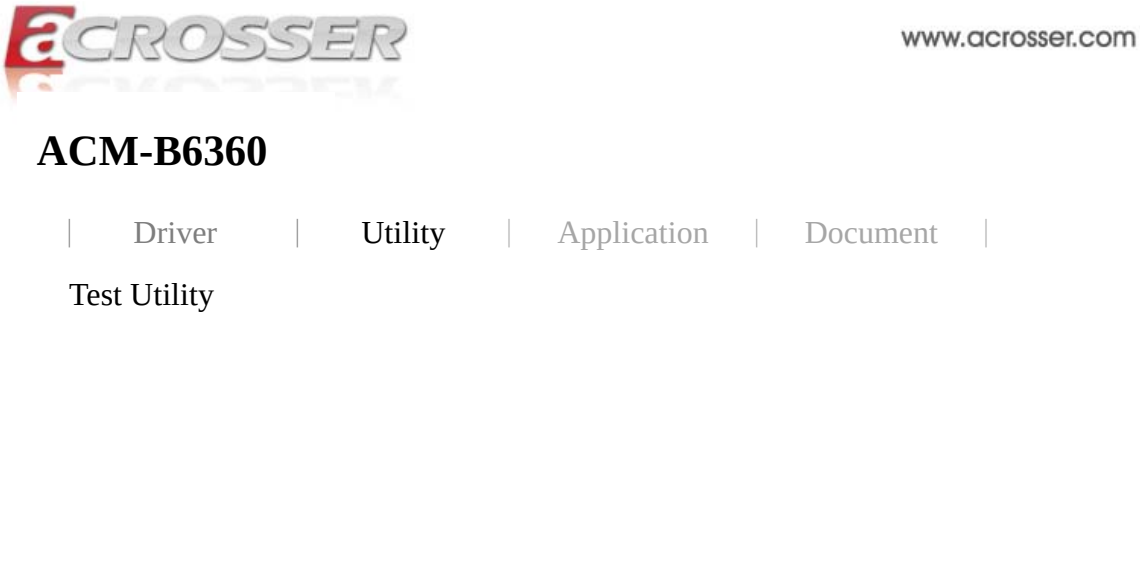
☐Chipset
☐LAN
☐Audio
☐VGA
☐USB3



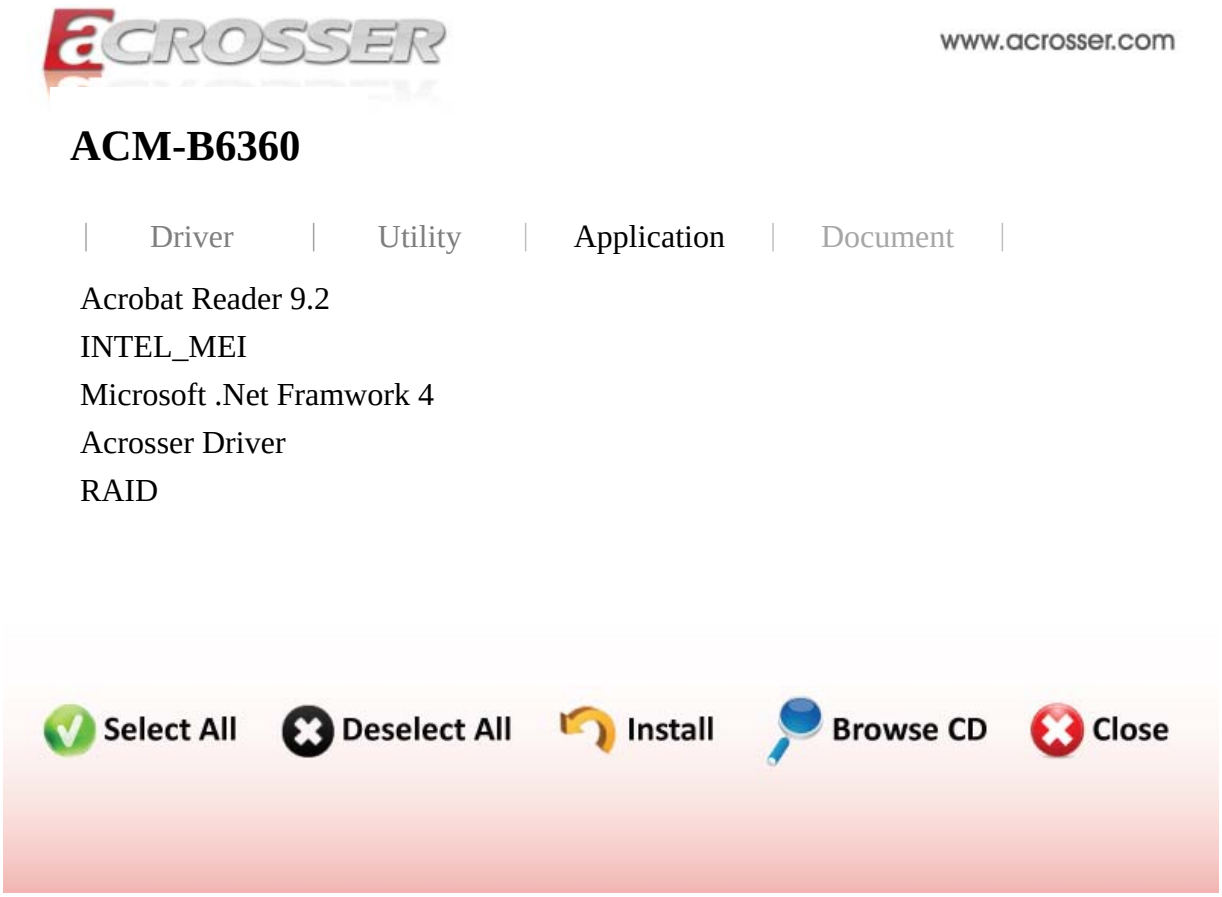
Click this icon to browse this CD content.



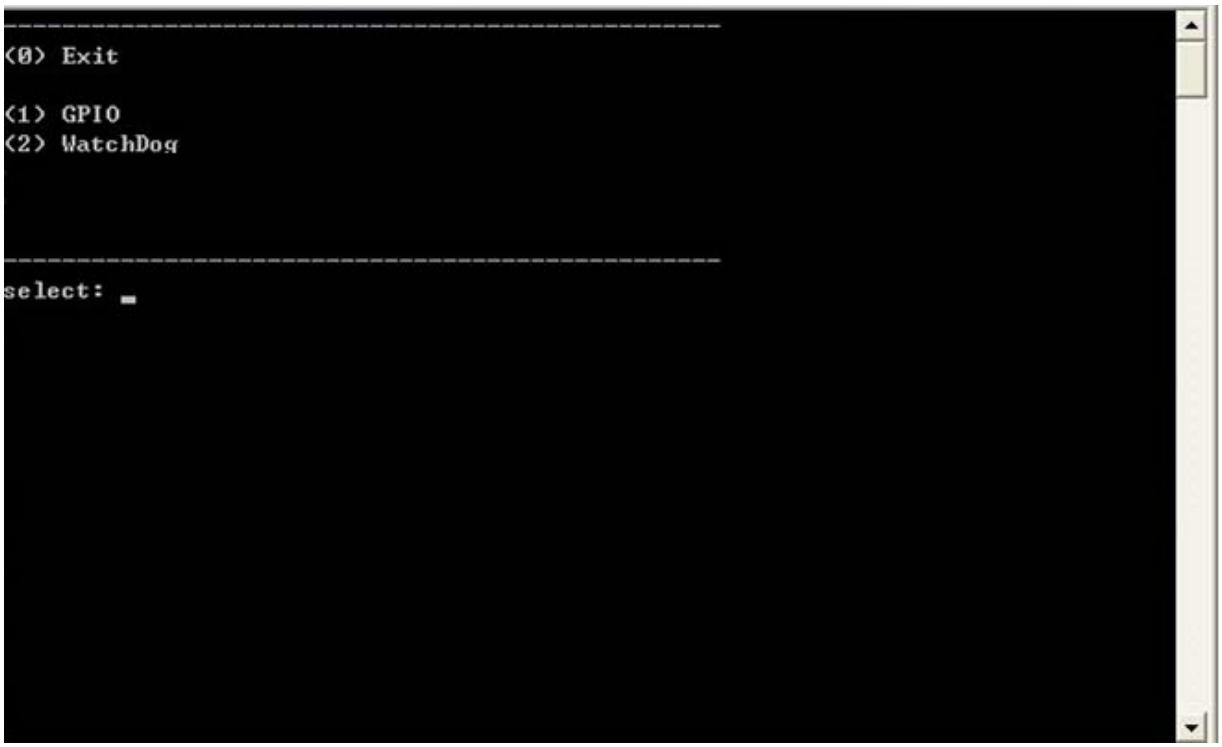
4.1.2 Utility Page



Before launching this utility, users have to install the ‘Acrosser Driver’ in advance. The system may ask for installing other libraries. You can find the libraries on the ‘Application’ page also.



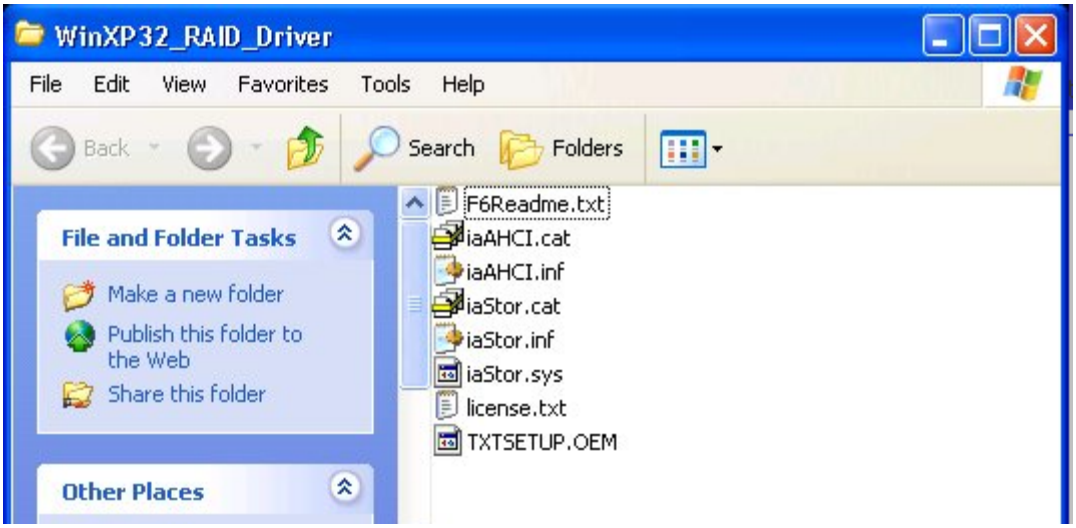
This is the test utility.



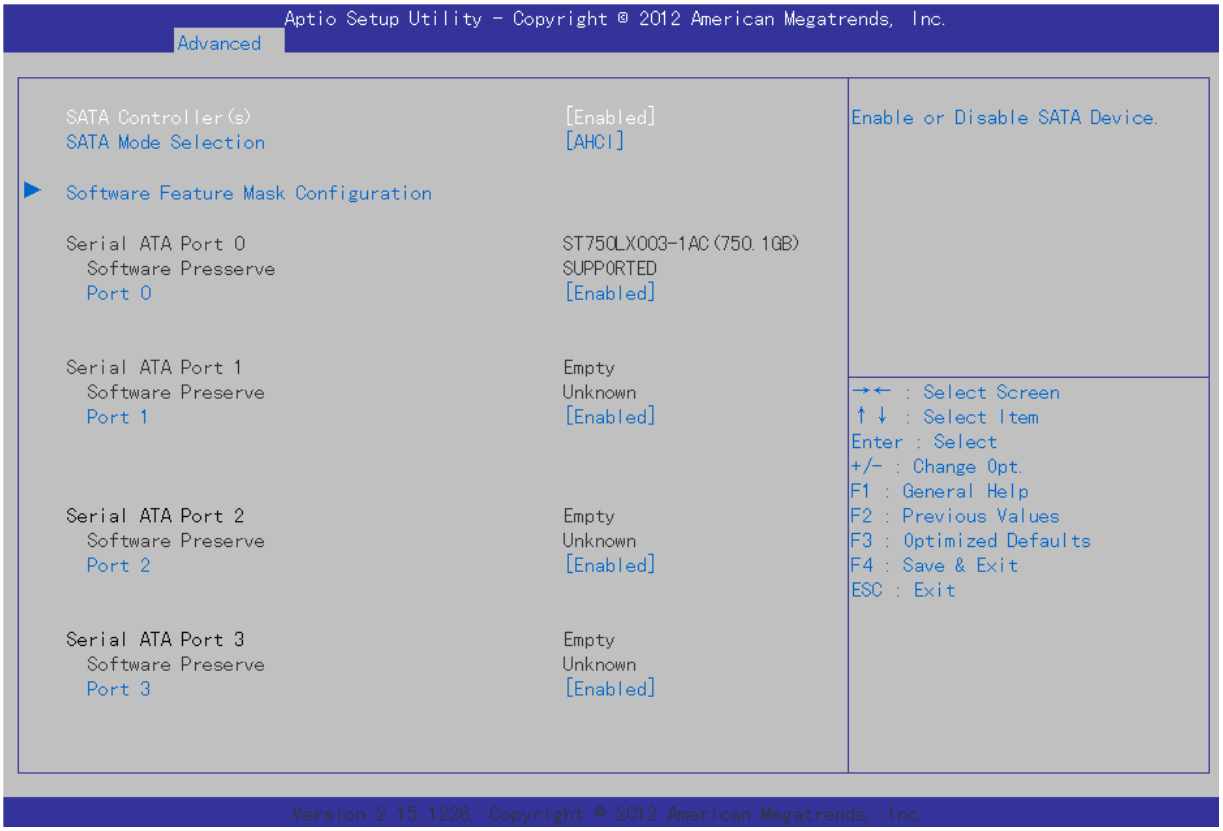
4.1.3 Application Page

Note: Installing Windows XP in the AHCI mode

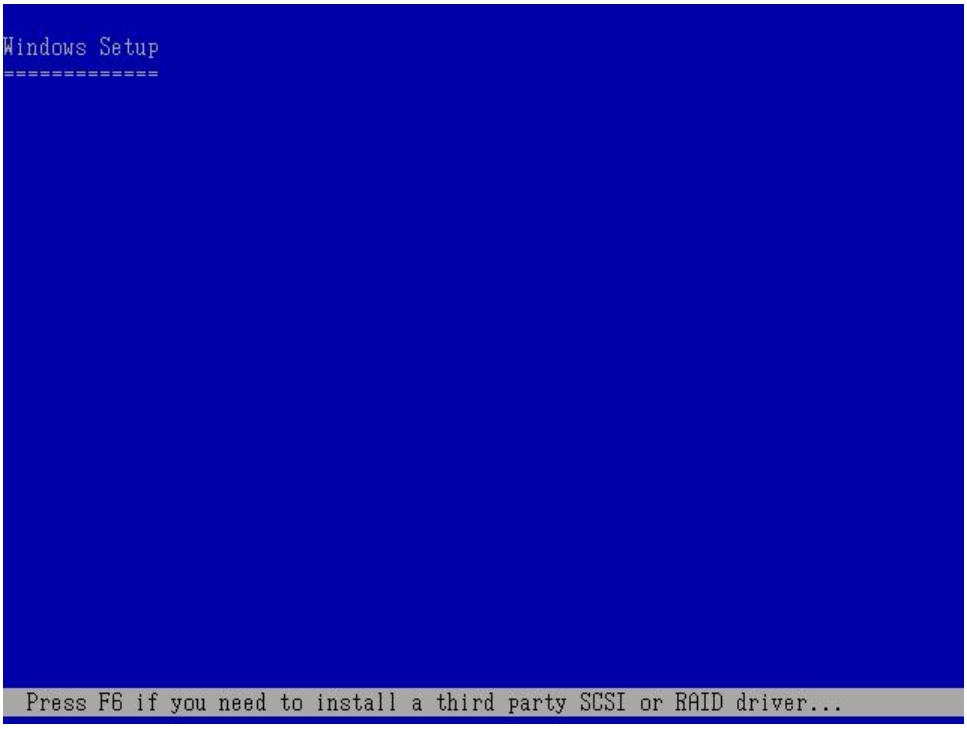
Due to Windows XP is older operating system, it don't include AHCI driver.
If you want to install Windows XP operating system in the AHCI mode, please follow the steps listed below. (reference 'F6Readme.txt' from folder of the WinXP32_RAID Driver)
Double click this item to open the folder of the WinXP32_RAID Driver. Users need this driver package if they install the Windows XP in the AHCI mode.



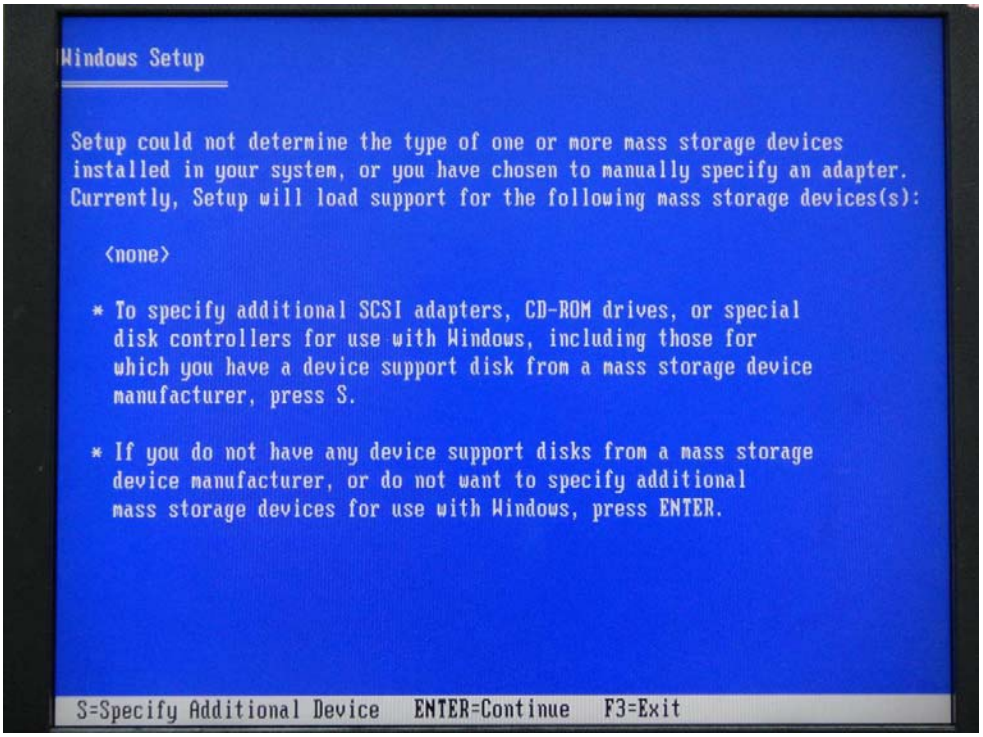
- Prepare a USB floppy drive and a floppy disk. Copy all the files in this folder to the floppy disk.
- In the BIOS setup, enable the AHCI mode of the hard drive.



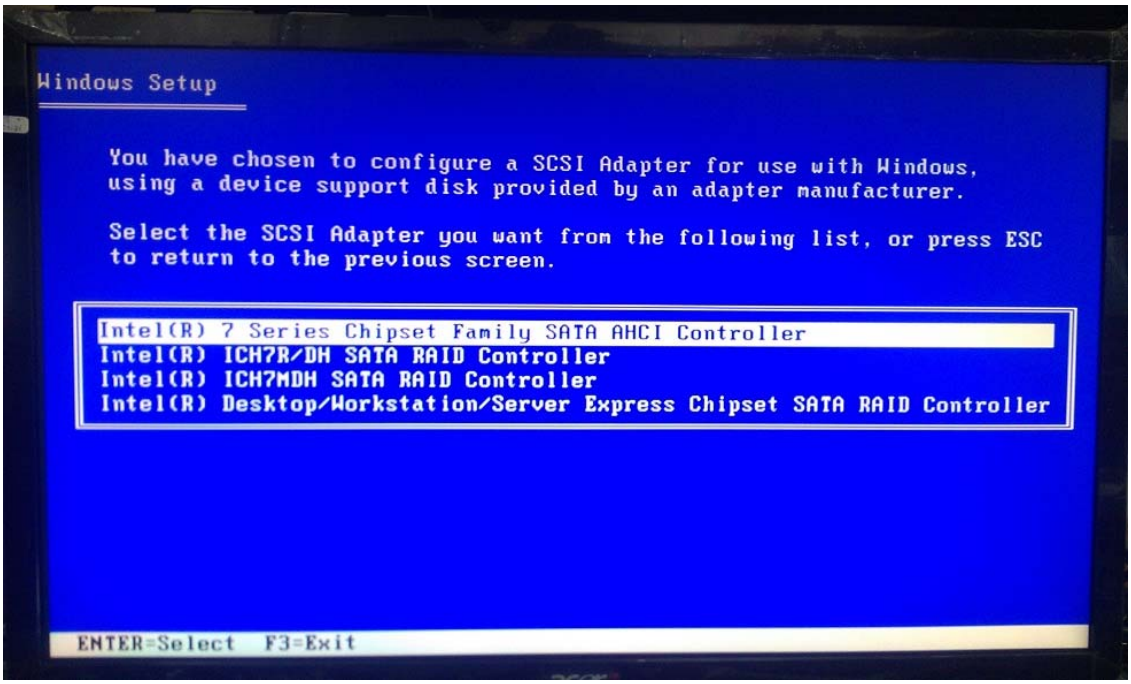
- Connect the floppy drive to the system before installing the Windows XP operating system. Make sure the floppy disk is inserted.
- Boot the system with the installation CD. Follow the instructions on the screen. As soon as the screen shows this information, press ‘F6’.



- When the screen shows this information, press ‘S’.


Windows Setup
Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage devices(s):
<none>
* To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
* If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.
S=Specify Additional Device ENTER=Continue F3=Exit

- When the screen shows a list of available drivers, choose the ‘Mobile Express Chipset SATA AHCI Controller’.

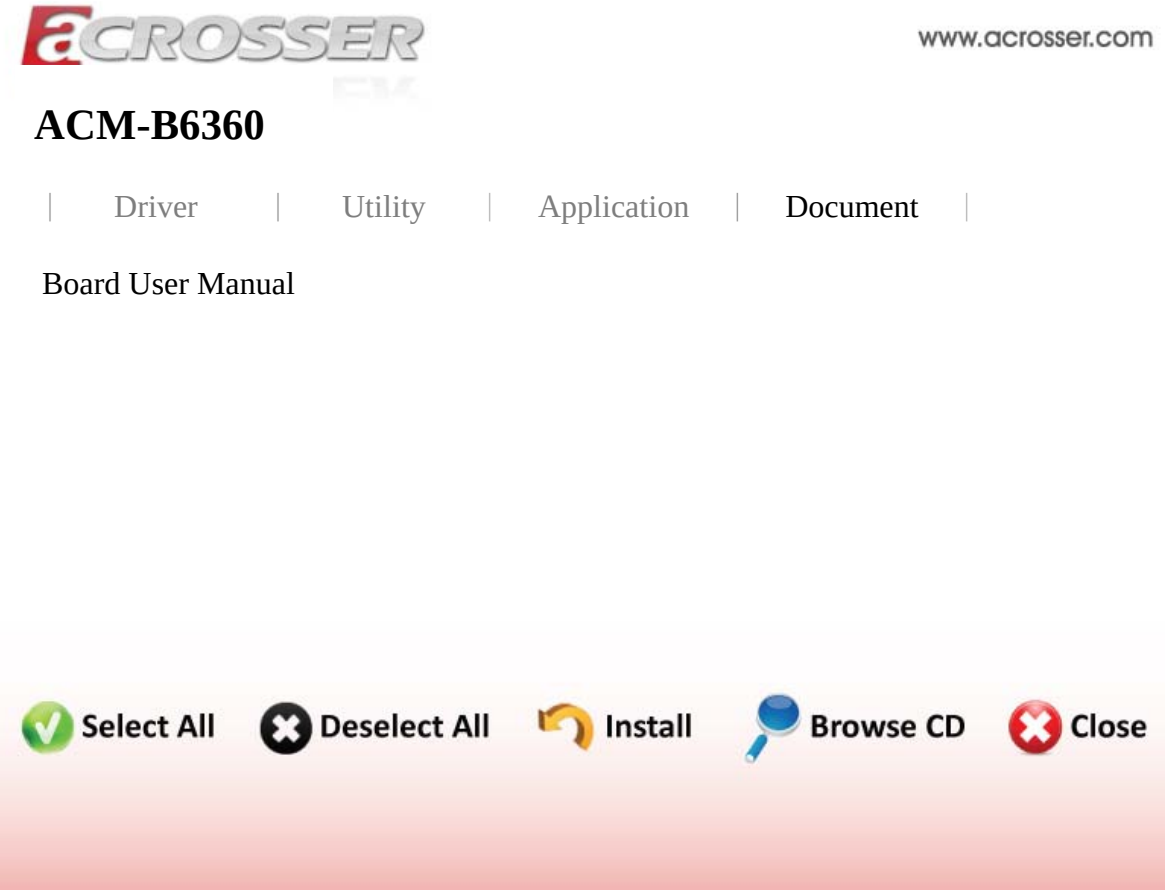

Windows Setup
You have chosen to configure a SCSI Adapter for use with Windows, using a device support disk provided by an adapter manufacturer.
Select the SCSI Adapter you want from the following list, or press ESC to return to the previous screen.
Intel(R) 7 Series Chipset Family SATA AHCI Controller
Intel(R) ICH7R/DH SATA RAID Controller
Intel(R) ICH7MDH SATA RAID Controller
Intel(R) Desktop/Workstation/Server Express Chipset SATA RAID Controller
ENTER=Select F3=Exit

- When the screen shows this information, press ‘Enter’ to continue installing the operating system.

Windows Setup
Setup will load support for the following mass storage device(s):
Intel(R) 7 Series Chipset Family SATA AHCI Controller
* To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
* If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.
S=Specify Additional Device ENTER=Continue F3=Exit

4.1.4 Documents Page

Double click on one of the items to open the manual.



Chapter 5 Software Installation and Programming Guide

5.1 API List and Descriptions

5.1.1 GPIO and Watchdog

5.1.1.1 Overview

This model provides both a GPIO interface and a Watchdog timer. Users can use the GPIO and Watchdog APIs to configure and to access the GPIO interface and the Watchdog timer. The GPIO has four input pins and four output pins. The Watchdog timer can be set to 1~255 seconds. Setting the timer to zero disables the timer. The remaining seconds of the timer to reboot can be read from the timer.

5.1.1.2 GPIO(Linux)

1. **Syntax:**

   Get_gpio_status(int pin)

   Description: Get the status of GPIO input pins and output pins status.

   Parameters:

   This function takes a pointer to an unsigned char variable as the parameter. The pin0 ~ 3 is the status of the output pins. The pin4 ~ pin7 is the status of the input pins.

   Return Value: 1:HIGH, 0:LOW.

2. **Syntax:**

   Set_gpio(int pin, int value)

   Description: Set the status of GPIO Output value.

   Parameters:

Set value 0 is Low, 1 is High

Return Value: If the function sets the values successfully, it returns 0 or -1, any other returned value stands for error.

5.1.1.3 GPIO (Windows)

1. **Syntax:**

   getChLevel(u8 *val)

Description: Get the status of GPIO input pins and output pins, and put the value at *val.

Parameters:

This function takes a pointer to an unsigned char variable as the parameter. The bit0 ~ bit3 in the pointed variable '*val' is the status of the output pins. The bit4 ~ bit7 in the pointed variable '*val' is the status of the input pins.

Return Value: If the function gets the value successfully, it returns 0 or -1, any other returned value stands for error.

2. **Syntax:**

   Set_gpio(int pin, int value)

Description: Set the status of GPIO Output value.

Parameters:

Set value 0 is Low, 1 is High

5.1.1.4 Watchdog (Liunx)

1. **Syntax:**

   Wdt_start(Void)

Description: This function of the watchdog time to start counter.
Parameters: The parameter 'val' is the value to set to watchdog timer register. The range is 1~ 255 .
Return Value: None.

2. **Syntax:**
   Wdt_stop(Void)

   Description: Any time call this function will stop Watchdog Timer.

   Parameters: None.
   Return Value: None.

3. **Syntax:**
   Get_wdt_count()

   Description: This function read the value of the watchdog time counter.

   Parameters: None.
   Return Value: This function returns the value of the time counter.

5.1.1.5 Watchdog (Windows)

1. **Syntax:**
   setWtdTimer(u8 value)

   Description: This function of the watchdog time to start counter.
   Parameters: The parameter ‘value’ is the value to set to watchdog timer register. The range is 1~ 255 .
   Return Value: None.

2. **Syntax:**
   getWtdTimer(void)

   Description: This function read the value of the watchdog time counter.

   Parameters: None.
   Return Value: This function returns the value of the time counter.